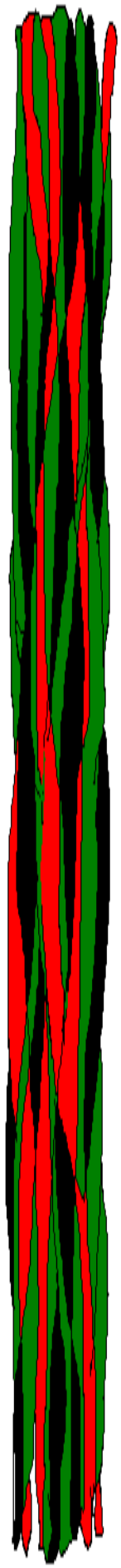
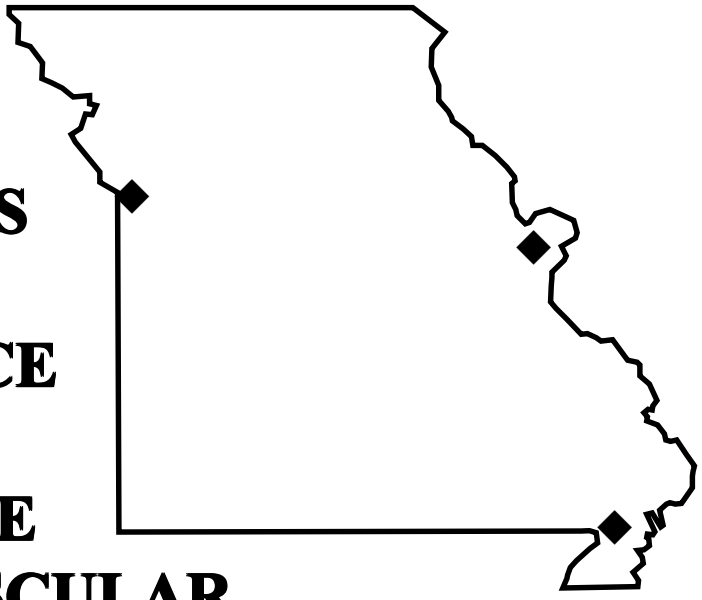


RACIAL/ ETHNIC DIFFERENCES IN THE PREVALENCE OF MODIFIABLE CARDIOVASCULAR DISEASE RISK FACTORS IN THREE REGIONS OF MISSOURI, 1996



Office of Surveillance, Research and Evaluation

Missouri Department of Health

Division of Chronic Disease Prevention and Health Promotion

2000

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RACIAL/ETHNIC DIFFERENCES IN THE PREVALENCE OF MODIFIABLE CARDIOVASCULAR DISEASE RISK FACTORS IN THREE REGIONS OF MISSOURI, 1996

Monograph No. 4

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Preface

The Division of Chronic Disease Prevention and Health Promotion is proud to share with you this report, "Racial/Ethnic Differences in the Prevalence of Modifiable Cardiovascular Disease Risk Factors in Three Regions of Missouri, 1996." This report is the fourth in a series of monographs dealing with the burden of chronic diseases among minorities in Missouri. It highlights areas of concern related to the human and economic burden of cardiovascular disease and associated challenges for public health in Missouri.

In 1997, the Division established a goal of increasing the number of chronic disease reports available to the public health community of Missouri. This concerted effort of our Office of Surveillance, Research and Evaluation aims to provide critical information to public health professionals working in the chronic disease field for the planning and implementation of health promotion programs in Missouri.

It is our goal to share data and other information available from health assessments and surveillance in order to direct efforts toward improvement of the health status of the residents we serve. This goal cannot be achieved unless we disseminate this very meaningful information to policy makers, planners, program managers and health professionals throughout the state in a timely manner.

I am pleased to share this report with you and others in the public health community. I look forward to a continuing flow of information from this Division which will help guide and direct our efforts in reaching our vision of "Healthy Missourians in Healthy Communities."

Bernard R. Malone, M.P.A., Director
Division of Chronic Disease Prevention and Health Promotion

June 2000

Racial/Ethnic Differences in the Prevalence of Modifiable Cardiovascular Disease Risk Factors in Three Regions of Missouri, 1996

Executive Summary

In 1996, 2,095 adults were interviewed in the City of St. Louis, Kansas City and the "Bootheel" region of Missouri by the Missouri Department of Health (MDOH) and the Center for Advanced Social Research-University of Missouri-Columbia School of Journalism. One of the goals of the study was to determine the prevalence of selected modifiable cardiovascular disease (CVD) risk factors in residents of the study regions, including current smoking, physical inactivity, obesity, hypertension and unmonitored cholesterol. Because there is little information on CVD risk factors among African Americans, communities with a high percentage of African Americans were selected. Study findings for adults from these areas include:

- ✔ The three-region study population had a higher overall prevalence of smoking, obesity, hypertension and unmonitored cholesterol than the overall prevalence for the state of Missouri in 1996.

- ✔ African Americans had higher overall prevalence rates than white/others for all selected modifiable CVD risk factors in 1996.

  - African-American females had the highest overall prevalence rates of physical inactivity, obesity and hypertension.

  - African-American males had the highest overall prevalence rates of unmonitored cholesterol and smoking.

- ✔ The overall prevalence rate of all modifiable CVD risk factors was highest among individuals age 55 and over and those with less than a high school education.

  - This finding remains after adjusting for sex and race.

- ✔ There was variation in the overall prevalence rate of modifiable CVD risk factors by geographic region and availability of health care coverage.

These findings suggest that modifiable CVD risk factor prevalence rates are an important public health issue for people living in the study regions. In 1996, prevalence rates were higher in the three-region study area for four of five CVD risk factors than for the state as a whole. In addition, African Americans, individuals age 55 and older and those with less than a high school education experienced greater CVD risk factor prevalence rates. Individuals in these specific subgroups need to be targeted in future population-specific public health initiatives designed to reduce the prevalence of CVD risk factors. More refined analyses currently in progress should clarify which sociodemographic and health-related factors contribute most to the above-identified changes.

Introduction

Cardiovascular disease (CVD) comprises diseases of the heart and the vessels, including ischemic heart disease and stroke. CVD is the leading cause of illness, disability, death and medical costs in the United States. Prevention and control of modifiable CVD risk factors such as smoking, physical inactivity, obesity, hypertension and high blood cholesterol are important public health issues in Missouri as in the United States. In 1989, cardiovascular disease accounted for 45% of all deaths in the state. This number has decreased from 43% in 1994 to 40% in 1998. However, CVD continues to be the leading cause of death in Missouri.

In general, CVD and CVD-related risk factors are high in African-American populations. National data show that since the 1960s whites have experienced a greater decline in death rate from heart disease than have African Americans. Nationally, the mortality rate from coronary heart disease and stroke is much greater in African-American males than in white males, while data from California show that African-American females have the highest age-adjusted coronary heart disease death rate of all ethnic groups. Almost one-third (31%) of excess mortality in African Americans can be related to the prevalence of modifiable CVD risk factors. Missouri mirrors the nation, with cardiovascular disease rates higher among African Americans than among whites; the decrease in CVD mortality has also been greater among whites than among African Americans.

Statewide, African Americans have higher smoking prevalence rates than whites, especially among males. Smoking is the leading cause of preventable deaths among African Americans. Physical inactivity rates are highest among African Americans and women, as well as those in the southeastern part of Missouri. African-American females are almost twice as likely to be obese as white women, while there is no difference between African-American and white males. Obesity has increased during the past ten

years in Missouri, particularly among African Americans. The rate of self-reported hypertension is similar for all males, while African-American females have higher rates than white females. African-American males are the population subgroup most likely to have unmonitored cholesterol in the state of Missouri. However, elevated cholesterol levels are higher among whites, with females having higher cholesterol levels than males.

An earlier monograph reported on changes in the prevalence of modifiable CVD risk factors between 1990 and 1996. During this time, African-American males made no improvements in the prevalence of modifiable CVD risk factors. African-American females had a significant increase in obesity. This monograph supports nationwide research showing continued disparities between African Americans and whites.

How to Use This Report

Results of this study are presented two ways. First, the combined region prevalences of CVD risk factors are presented. Second, risk factor prevalences by region are presented, with actual numbers of cases. The former presentation can be used to assess overall disparities in the prevalence of rates by race and ethnicity. This allows planners to decide whether to initiate targeted or population-based interventions.

The latter form of our presentation allows health planners to identify the region(s) with greatest relative and absolute burden of CVD risk factors. One can use the relative burden to prioritize which communities need disbursement of constrained resources to reduce the risk factors. One can use the absolute burden to plan for attending to the needs of individuals in their communities. For example, knowing how many people have never monitored cholesterol levels will help plan needed programs to offer that number of people cholesterol screenings.

Methods

Sampling

1996 Cardiovascular Targeted Health Initiative Survey

Between May and September 1996, the Missouri Department of Health, Division of Chronic Disease Prevention and Health Promotion (MDOH-CDPHP) conducted telephone interviews with 2,095 residents of the City of St. Louis, Kansas City and the Bootheel region of Missouri. The Bootheel region included Mississippi, New Madrid, Pemiscot and Dunklin counties, but did not include Scott and Stoddard counties. Telephone interviews were conducted by the CDPHP Office of Surveillance, Research and Evaluation (OSRE) and the Center for Advanced Social Research (CASR), University of Missouri-Columbia (MU) School of Journalism. Participants were selected by random-digit-dialing (RDD) techniques (see Appendix A).

By selecting these three regions of the state and oversampling certain ZIP codes within each region, a deliberate attempt was made to include a large number of African Americans. Sample populations were identified using census data and ZIP codes to target areas with substantial African-American populations: City of St. Louis (40%-99%); Kansas City (20%-99%); and the Bootheel region (18%-46%). Data were weighted to compensate for unequal probability of selection and representation of some elements of the sample population (for example, young men are frequently undersampled in telephone surveys). See Appendix A for additional details regarding study methods.

Variable Definitions

For purposes of this study, data and respondents were categorized as follows:

- **Age** – Respondents were divided into three age groups: 18-34; 35-54; and 55 and older.
- **Race/ethnicity** – Respondents were categorized as African-American; white; or "other." The "other" group included Asian/Pacific Islanders, Native Americans and Hispanics. In this report we analyzed whites and others together for two reasons. First, there are a small number of "other" ethnic/racial respondents in the study areas. Second, the focus of this report is to highlight findings among African Americans.
- **Educational attainment** – Participants were divided into three groups: those with less than a high school diploma or its equivalent; those with a high school diploma or its equivalent;

and those with more than a high school diploma.

- **Smoking habits** – Respondents were divided into three groups: current smokers; former smokers; and those who have never smoked.
- **Physical inactivity** – Participants were considered to be physically inactive if they answered "no" to the question: "During the past month, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening or walking for exercise?"
- **Body mass index (BMI)** – BMI, the standard method for defining obesity, was calculated by dividing weight in kilograms by height in meters squared. Respondents were divided into two groups according to their BMI: those with normal BMI or less (non-obese); and those with greater than normal BMI (obese). Women were considered obese if their BMI was 27.3 or higher; men were considered obese if their BMI was 27.8 or higher.
- **Frequency of hypertension** – Participants were considered hypertensive if they answered "yes" to the question: "Have you ever been told by a doctor that you have hypertension?"
- **Frequency of unmonitored cholesterol** – Participants were considered to have unmonitored blood cholesterol if they answered "no" to the question: "Have you ever had your blood cholesterol checked?"
- **Availability of health care coverage** – Participants were classified as having health care coverage based on their response to the question: "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs or government plans such as Medicare?"

Analysis

Investigators generated race- and gender-specific prevalence estimates and 95 percent confidence intervals (CI) for self-reported hypertension and other cardiovascular risk factors such as current smoking, physical inactivity, obesity and unmonitored blood cholesterol across a variety of demographic and health related factors.

Maps

Maps were created to show the prevalence rates within each ZIP code. Maps were also created to show the estimated number of individuals in each ZIP code with various modifiable CVD risk factors. These are found in the Results section, pages 7-46, separated by study region. A Map section contains a detailed description of the methodology used in the creation of the maps, as well as maps describing the demographics of each study area (Appendix C).

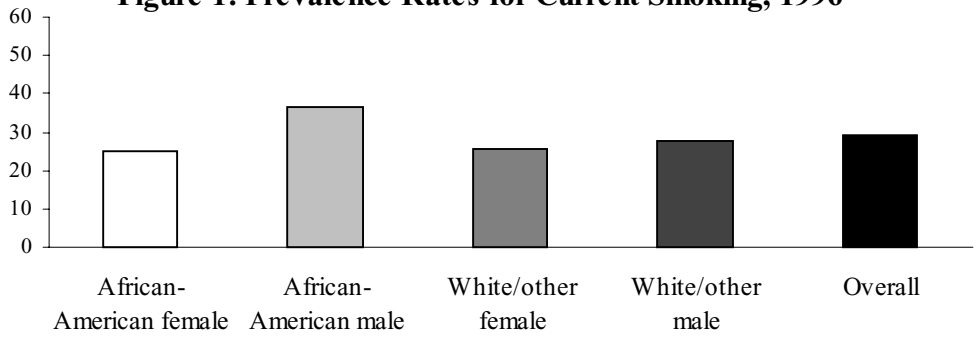
Results

(combined regions)

Current Smoking

The three-region estimated overall prevalence of current smoking was 29.0% in 1996 (figure 1), which was higher than the state prevalence rate of 24.4%. Prevalence of current smoking was higher among individuals without health care coverage and those aged 35-54. Although there were no racial differences in current smoking prevalence, the smoking rate was higher among males and this difference was nearly significant (see table 2).

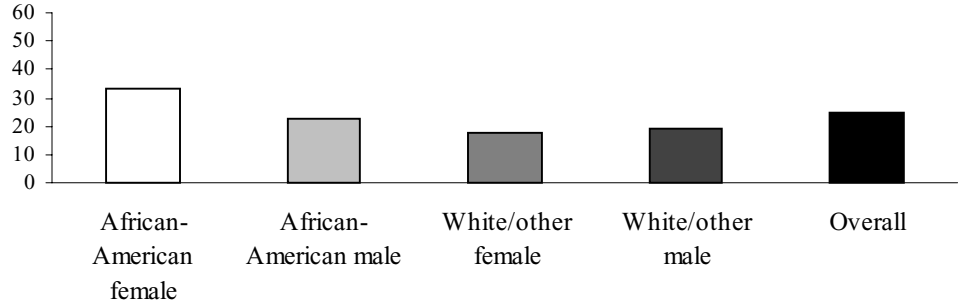
Figure 1: Prevalence Rates for Current Smoking, 1996



Physical Inactivity

The three-region estimated overall prevalence of physical inactivity was 25.0%, which was less than the state prevalence of 30.2% (figure 2). Physical inactivity decreased with education and increased with age. Prevalence of physical inactivity was slightly higher among females. This difference was driven by gender differences among African Americans (see table 3).

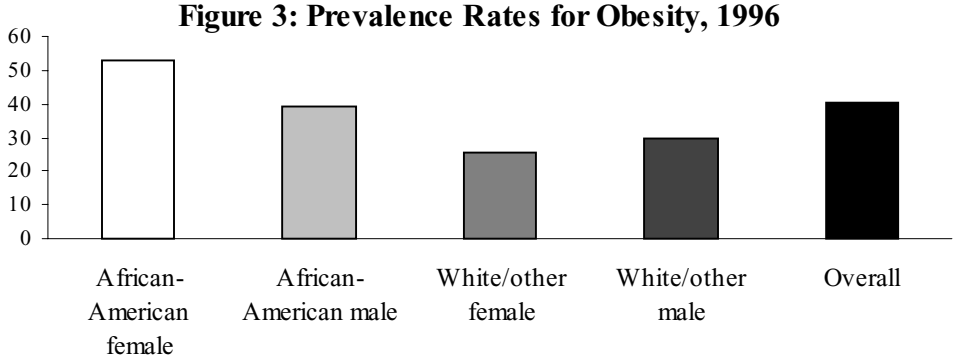
Figure 2: Prevalence Rates for Physical Inactivity, 1996



Obesity

The three-region estimated overall prevalence of obesity was 40.1% (figure 3), which was higher than the state prevalence rate of 32.2%. This rate was driven by African Americans; obesity rates were higher among African Americans and all females (see table 4). For both, the variation was driven by the high prevalence rates among African-American females.

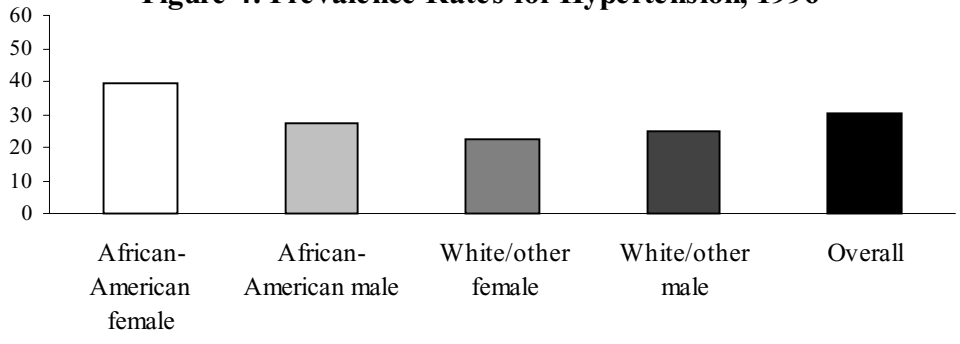
Figure 3: Prevalence Rates for Obesity, 1996



Hypertension

The three-region estimated overall lifetime prevalence of hypertension was 30.4% (figure 4), which was higher than the statewide prevalence of 23.1%. The all-race prevalence of hypertension was slightly higher in females than males (table 5). This gender difference was driven by African Americans, while in whites/others there was no gender difference. There was virtually no difference in hypertension among African-American and white/other males, but a large difference between African-American and white/other females.

Figure 4: Prevalence Rates for Hypertension, 1996

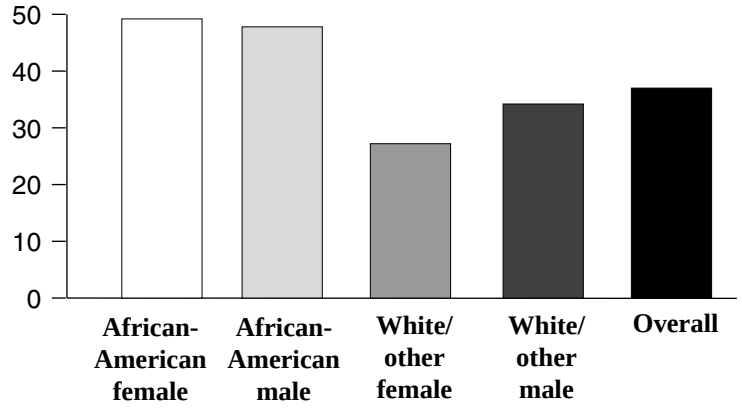


Unmonitored Cholesterol

The three-region estimated overall prevalence of unmonitored cholesterol was 37.0% (figure 5), which was greater than the statewide prevalence rate of 23.7%.

All-race prevalence rates were higher among males than females (table 6). This gender difference was driven by whites, while in African Americans there was no gender difference. African Americans of both sexes had higher prevalence rates than whites/others of the same sex.

Figure 5: Prevalence Rates for Unmonitored Cholesterol, 1996



— Notes —

Results

(selected regions)

St. Louis

Current Smoking

The weighted prevalence of current smoking in the City of St. Louis can be seen in Map 1. The highest rates were in the 63106 and 63107 ZIP codes, with the next highest rates in the 63113 and 63120 ZIP codes. The lowest rate was in the combined 63101 and 63147 ZIP codes.

Map 2 shows the estimated current smoking cases in the City of St. Louis. The highest number of cases came from ZIP codes 63106 and 63107. The smallest number of cases came from the combined ZIP codes 63101 and 63147, which also had the lowest prevalence rate.

Physical Inactivity

The weighted prevalence of physical inactivity in the City of St. Louis can be seen in Map 3. Rates were highest in the 63113, 63115, 63101, 63147 and 63120 ZIP codes. The lowest prevalence rate was in the 63108 ZIP code.

Map 4 shows the estimated cases of physical inactivity in the City of St. Louis. The highest number of cases was in the 63115 ZIP code, followed closely by 63112, 63106, 63107 and 63113. The smallest number of cases was found in ZIP codes 63108, 63110, 63101 and 63147.

Obesity

The weighted prevalence of obesity in the City of St. Louis can be seen in Map 5. The highest rate was found in ZIP code 63120, while the lowest rates came from ZIP codes 63108 and 63110. The other areas of the City of St. Louis all had similar obesity rates.

Map 6 shows the estimated cases of obesity in the City of St. Louis. The highest number of cases were in the 63106, 63107, and 63115 ZIP codes. The smallest number of cases were found in ZIP codes 63108 and 63110.

Hypertension

The weighted prevalence of hypertension in the City of St. Louis can be seen in Map 7. The highest rates were found in ZIP codes 63115 and 63113, while the lowest rate came from ZIP code 63108. The other areas of the City of St. Louis all had similar hypertension rates.

Map 8 shows the estimated cases of hypertension in the City of St. Louis. The highest number of cases came from ZIP code 63115. The smallest number of cases came from ZIP code 63108 and the combined 63101 and 63147 zip codes.

Unmonitored Cholesterol

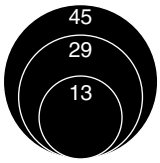
The weighted prevalence of unmonitored cholesterol in the City of St. Louis can be seen in Map 9. The highest rates were found in ZIP codes 63112 and 63110, while the lowest rates were in the 63103, 63104 and 63108 ZIP codes. However, rates throughout the City of St. Louis were similar.

Map 10 shows the estimated cases of unmonitored cholesterol in the City of St. Louis. The highest number of cases came from ZIP codes 63112, 63106 and 63107. The smallest number of cases came from the combined ZIP codes 63101 and 63147.

> **Note:** *See Map 31 for zip code references and Map 32 for unweighted number of study participants by zip code.*

St. Louis City

Map 1. Weighted Current Smoking Prevalence Rate by ZIP Code for People Age 18 or Older



Rate per 100

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted current smoking prevalence rate.

Data from ZIP codes 63101 and 63147 were aggregated to determine the weighted current smoking prevalence rate. Although not contiguous, their socioeconomic characteristics are similar.

Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

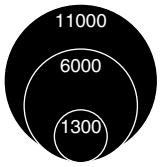
ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

St. Louis City

Map 2. Estimated Number of Current Smoking Cases by ZIP Code for People Age 18 or Older



The estimated number of current smoking cases for each area was calculated by multiplying the area's susceptible population by its weighted current smoking prevalence rate for people age 18 or older.

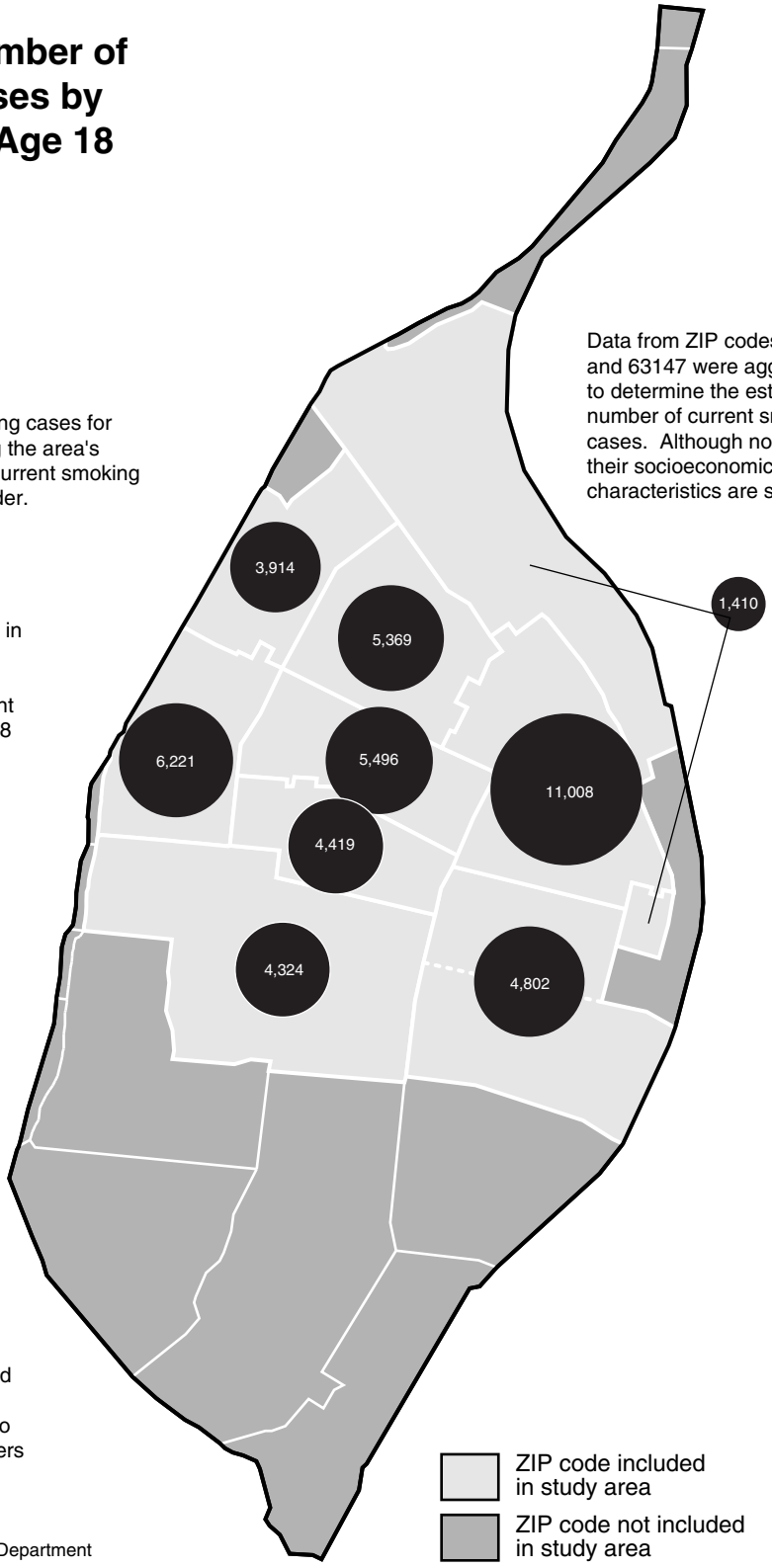
Total population age 18 or older in study area = 162,824

Estimated total number of current smoking cases for people age 18 or older in study area = 46,963

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted current smoking prevalence rate.

Data from ZIP codes 63101 and 63147 were aggregated to determine the estimated number of current smoking cases. Although not contiguous, their socioeconomic characteristics are similar.

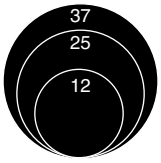


Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

St. Louis City

Map 3. Weighted Physical Inactivity Prevalence Rate by ZIP Code for People Age 18 or Older



Rate per 100

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted physical inactivity prevalence rate.

Data from ZIP codes 63101 and 63147 were aggregated to determine the weighted physical inactivity prevalence rate. Although not contiguous, their socioeconomic characteristics are similar.

Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

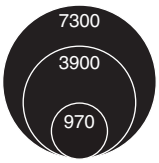
ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

St. Louis City

Map 4. Estimated Number of Physical Inactivity Cases by ZIP Code for People Age 18 or Older



The estimated number of physical inactivity cases for each area was calculated by multiplying the area's susceptible population by its weighted physical inactivity prevalence rate for people age 18 or older.

Total population age 18 or older in study area = 162,824

Estimated total number of physical inactivity cases for people age 18 or older in study area = 43,630

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted physical inactivity prevalence rate.

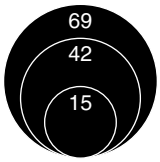
Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Data from ZIP codes 63101 and 63147 were aggregated to determine the estimated number of physical inactivity cases. Although not contiguous, their socioeconomic characteristics are similar.

St. Louis City

Map 5. Weighted Obesity Prevalence Rate by ZIP Code for People Age 18 or Older



Rate per 100

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted obesity prevalence rate.

Data from ZIP codes 63101 and 63147 were aggregated to determine the weighted obesity prevalence rate. Although not contiguous, their socioeconomic characteristics are similar.

Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

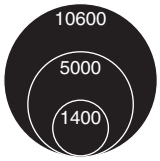
ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

St. Louis City

Map 6. Estimated Number of Obesity Cases by ZIP Code for People Age 18 or Older



The estimated number of obesity cases for each area was calculated by multiplying the area's susceptible population by its weighted obesity prevalence rate for people age 18 or older.

Total population age 18 or older in study area = 162,824

Estimated total number of obesity cases for people age 18 or older in study area = 63,624

Contiguous ZIP codes aggregated

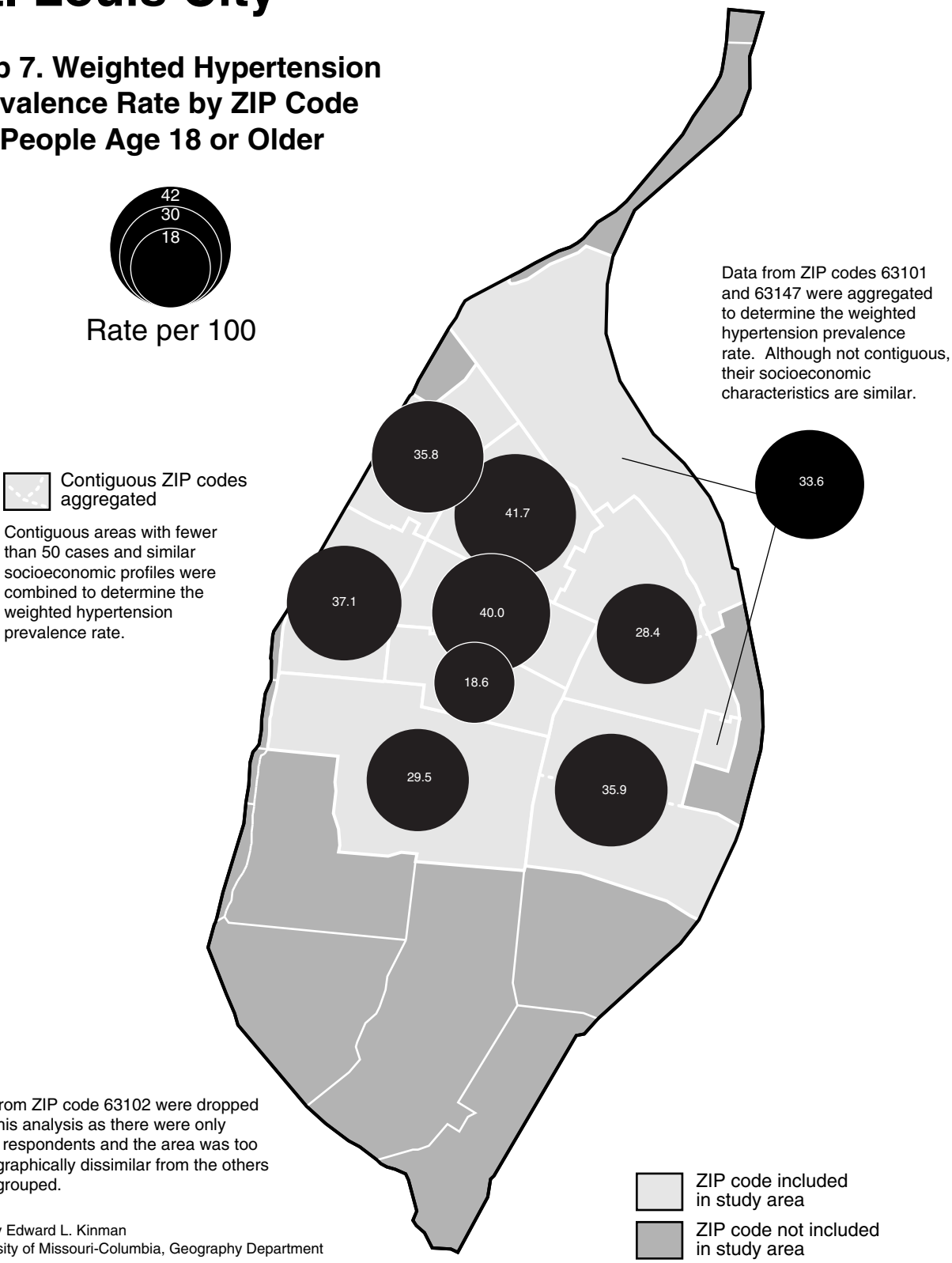
Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted obesity prevalence rate.

Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

St. Louis City

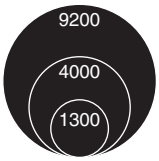
Map 7. Weighted Hypertension Prevalence Rate by ZIP Code for People Age 18 or Older



Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

St. Louis City

Map 8. Estimated Number of Hypertension Cases by ZIP Code for People Age 18 or Older



The estimated number of hypertension cases for each area was calculated by multiplying the area's susceptible population by its weighted hypertension prevalence rate for people age 18 or older.

Total population age 18 or older in study area = 162,824

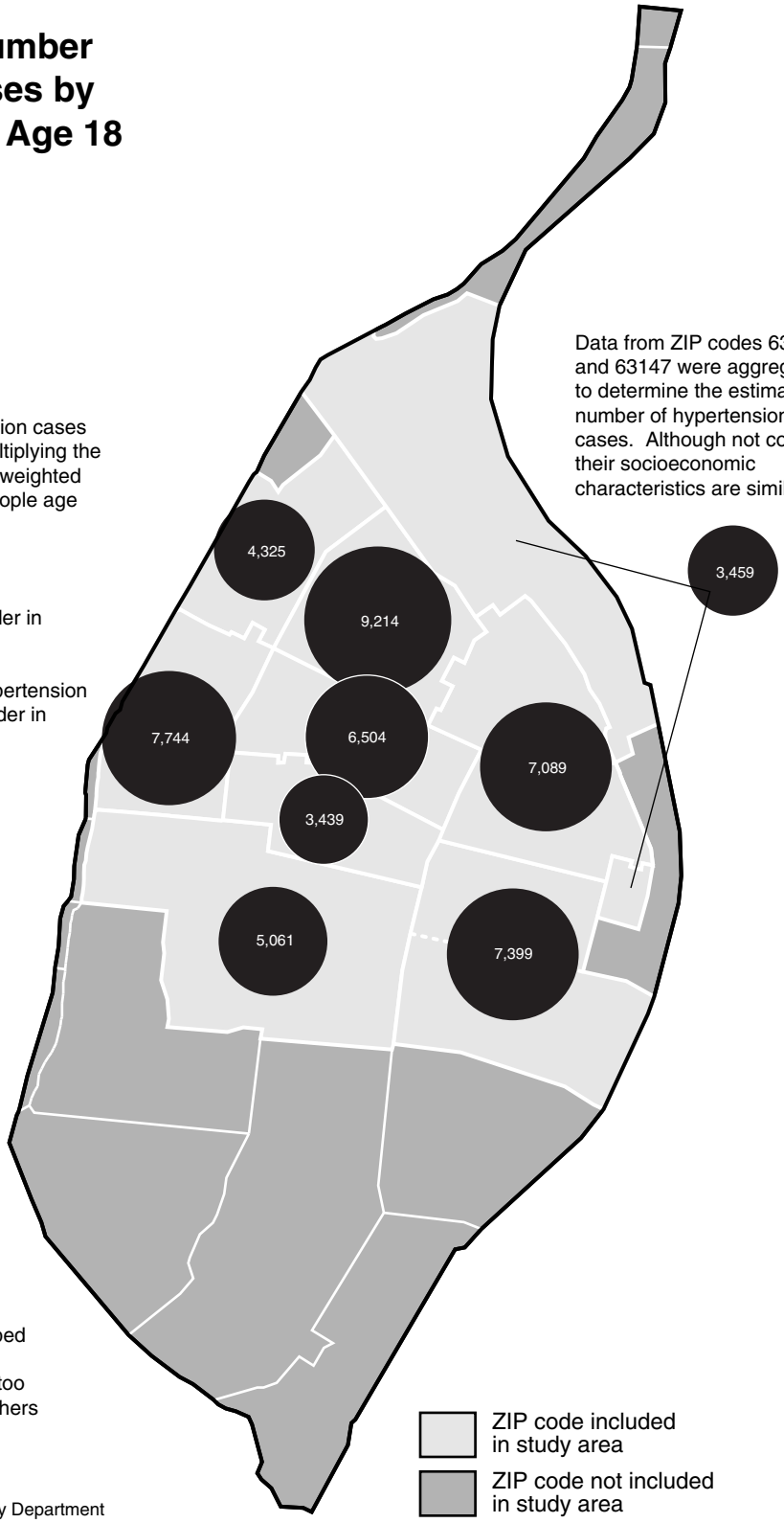
Estimated total number of hypertension cases for people age 18 or older in study area = 54,235

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted hypertension prevalence rate.

Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

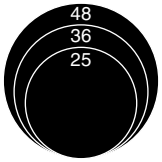
Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department



Data from ZIP codes 63101 and 63147 were aggregated to determine the estimated number of hypertension cases. Although not contiguous, their socioeconomic characteristics are similar.

St. Louis City

Map 9. Weighted Unmonitored Cholesterol Prevalence Rate by ZIP Code for People Age 18 or Older

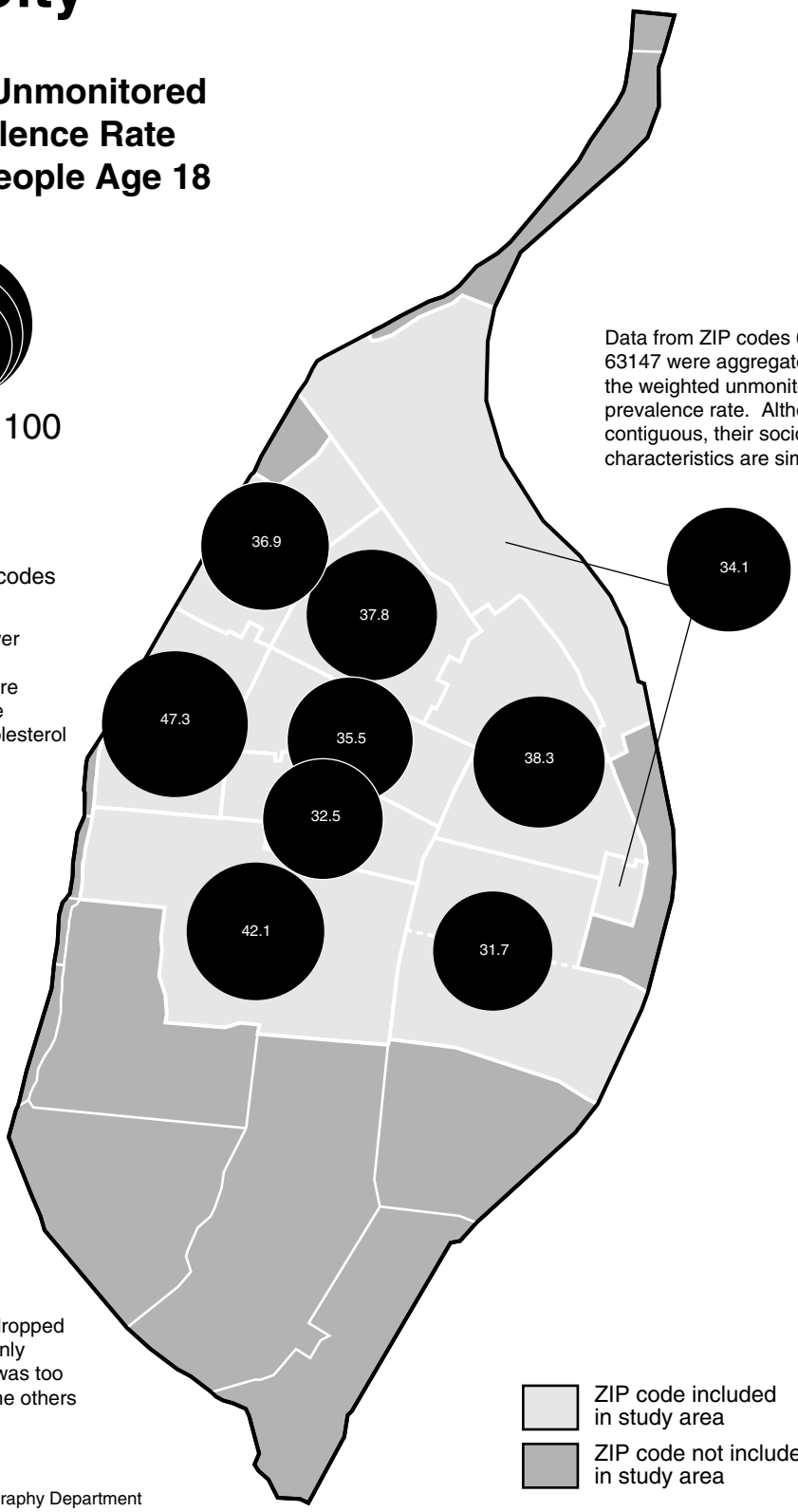


Rate per 100

Data from ZIP codes 63101 and 63147 were aggregated to determine the weighted unmonitored cholesterol prevalence rate. Although not contiguous, their socioeconomic characteristics are similar.

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted unmonitored cholesterol prevalence rate.



Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

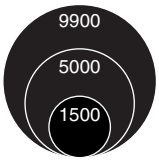
ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

St. Louis City

Map 10. Estimated Number of Unmonitored Cholesterol Cases by ZIP Code for People Age 18 or Older



The estimated number of unmonitored cholesterol cases for each area was calculated by multiplying the area's susceptible population by its weighted unmonitored cholesterol prevalence rate for people age 18 or older.

Total population age 18 or older in study area = 162,824

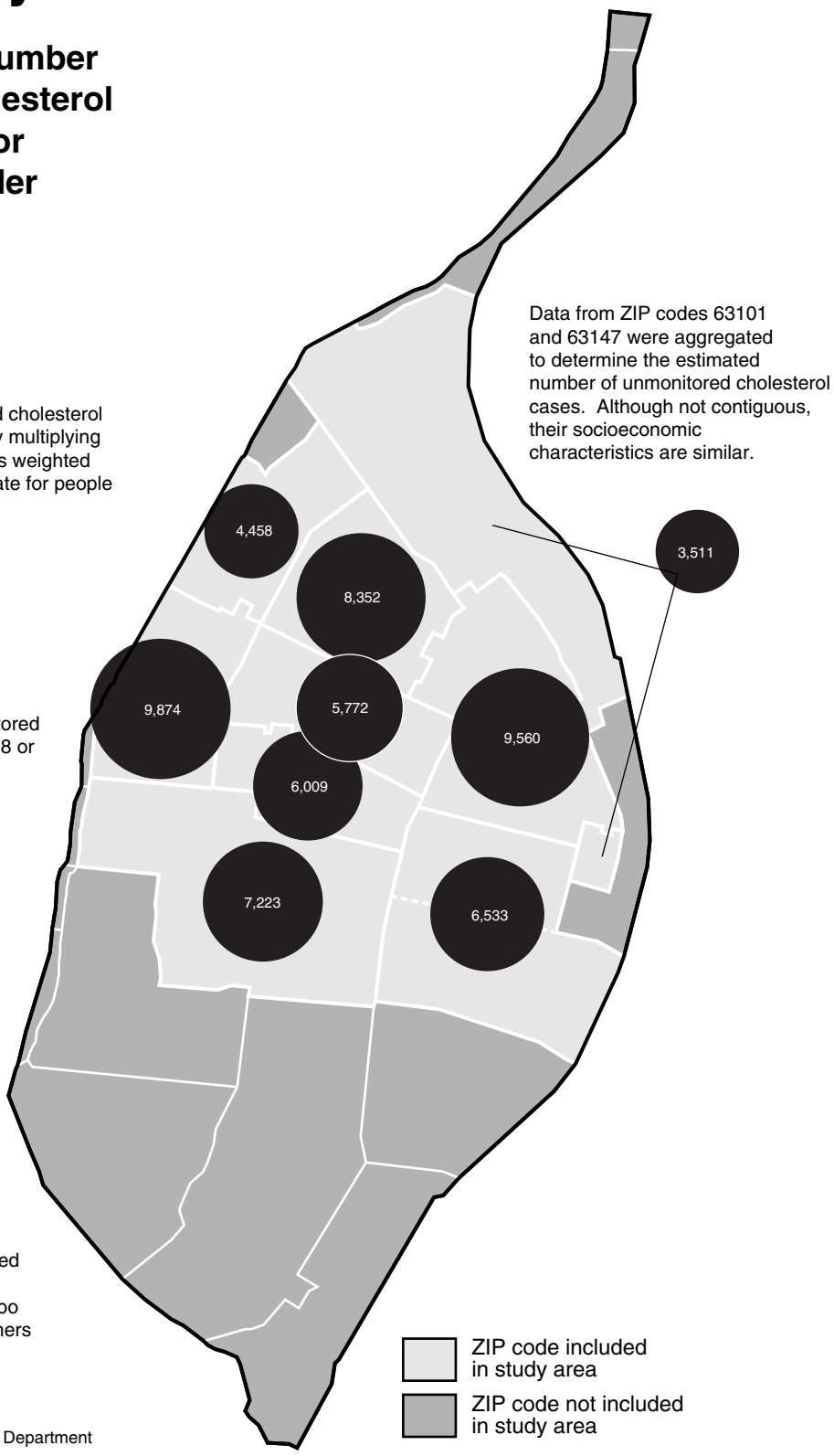
Estimated total number of unmonitored cholesterol cases for people age 18 or older in study area = 61,292

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted unmonitored cholesterol prevalence rate.

Data from ZIP code 63102 were dropped from this analysis as there were only seven respondents and the area was too demographically dissimilar from the others to be grouped.

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department



Current Smoking

The weighted prevalence of current smoking in Kansas City can be seen in Map 11. The highest rates were found in ZIP codes 64132 and 64128, while the lowest rates were in the 64110, 64106, 64108 and 64109 ZIP codes.

Map 12 shows the estimated cases of current smoking in Kansas City. The highest number of cases came from ZIP code 64130. The smallest number of cases came from ZIP code 64110. The others were similar.

Physical Inactivity

The weighted prevalence of physical inactivity in Kansas City can be seen in Map 13. The highest rates were found in ZIP codes 64127 and 64130, while the lowest rate was found in ZIP code 64131. All other rates were similar throughout Kansas City.

Map 14 shows the estimated cases of physical inactivity in Kansas City. The highest number of cases came from ZIP code 64130, the smallest number of cases from ZIP code 64131.

Obesity

The weighted prevalence of obesity in Kansas City can be seen in Map 15. The highest rates were found in ZIP codes 64127 and 64128, while the lowest rates were found in ZIP codes 64131 and 64110.

Map 16 shows the estimated cases of physical inactivity in Kansas City. The highest number of cases came from ZIP codes 64130 and 64127, the smallest number of cases from ZIP codes 64131 and 64110.

Hypertension

The weighted prevalence of hypertension in Kansas City can be seen in Map 17. The highest rates were found in ZIP codes 64127, 64106,

64108 and 64109, while the lowest rates were found in ZIP codes 64131 and 64110.

Map 18 shows the estimated cases of hypertension in Kansas City. The highest number of cases came from ZIP codes 64106, 64108 and 64109. The smallest number of cases came from ZIP codes 64110 and 64131.

Unmonitored Cholesterol

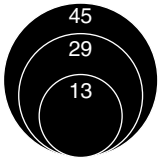
The weighted prevalence of unmonitored cholesterol in Kansas City can be seen in Map 19. The highest rate was found in ZIP code 64128, while the lowest rate was found in ZIP code 64110. All other rates in Kansas City were similar.

Map 20 shows the estimated cases of unmonitored cholesterol in Kansas City. The highest number of cases came from ZIP codes 64130 and 64131. The smallest number of cases came from ZIP code 64110.

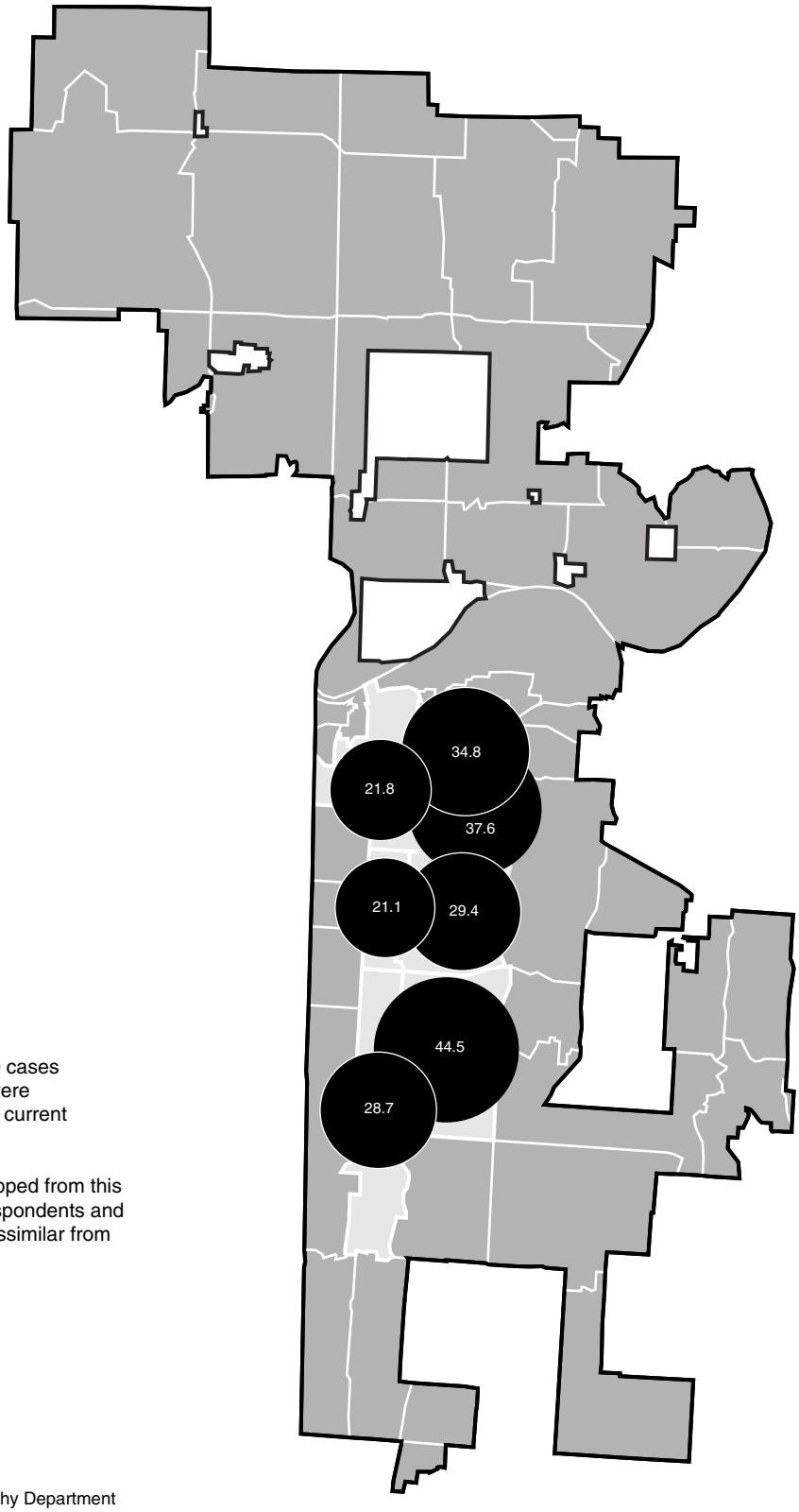
> **Note:** *See Map 33 for zip code references and Map 34 for unweighted number of study participants by zip code.*

Kansas City

Map 11. Weighted Current Smoking Prevalence by ZIP Code for People Age 18 or Older



Rate per 100



Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted current smoking prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

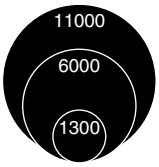
ZIP code included in study area

ZIP code not included in study area

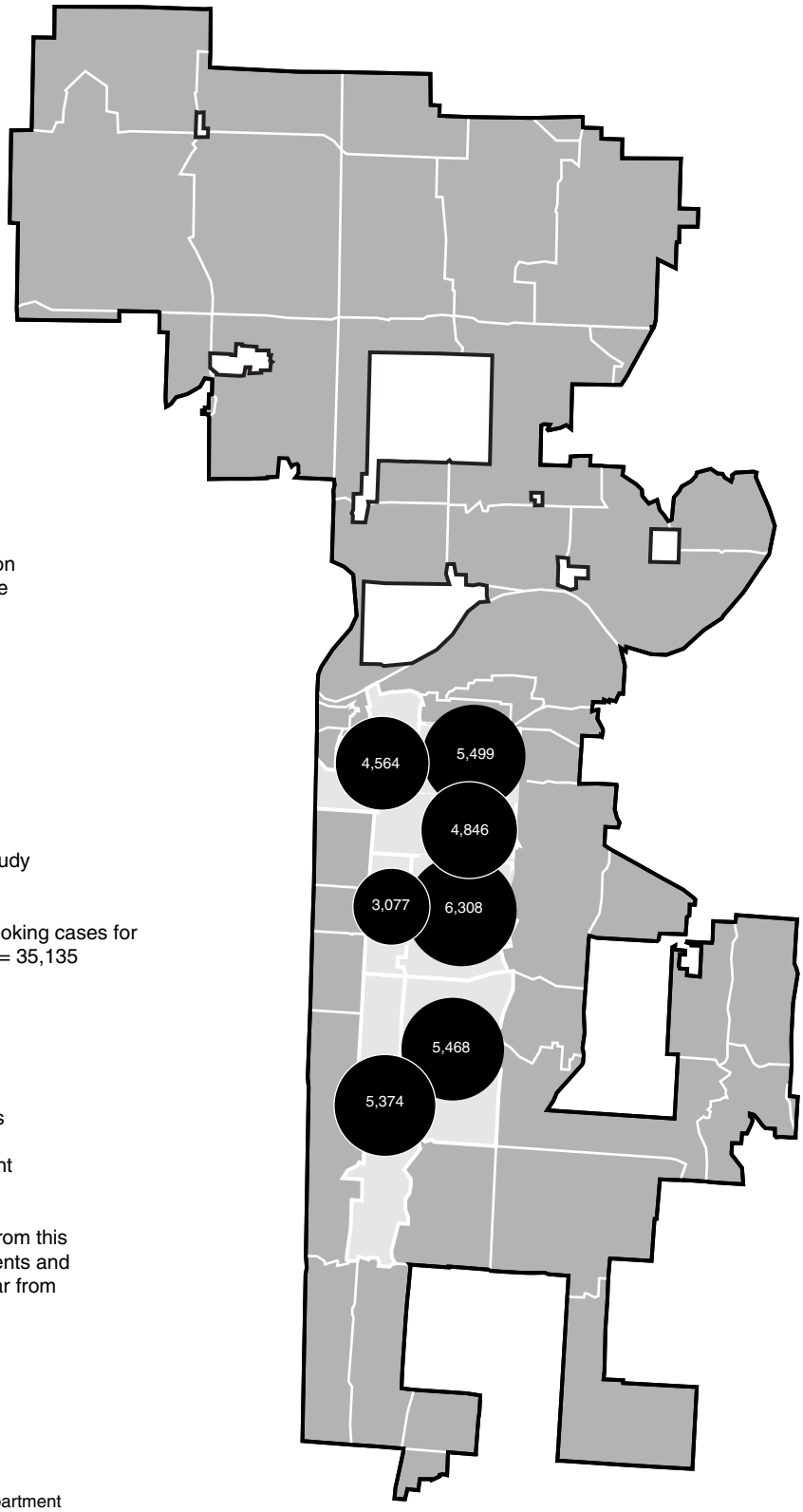
Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 12. Estimated Number of Current Smoking Cases by ZIP Code for People Age 18 or Older



The estimated number of current smoking cases for each area was calculated by multiplying the area's susceptible population by its weighted current smoking prevalence rate for people age 18 or older.



Total population age 18 or older in study area = 116,672

Estimated total number of current smoking cases for people age 18 or older in study area = 35,135

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted current smoking prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

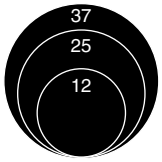
ZIP code included in study area

ZIP code not included in study area

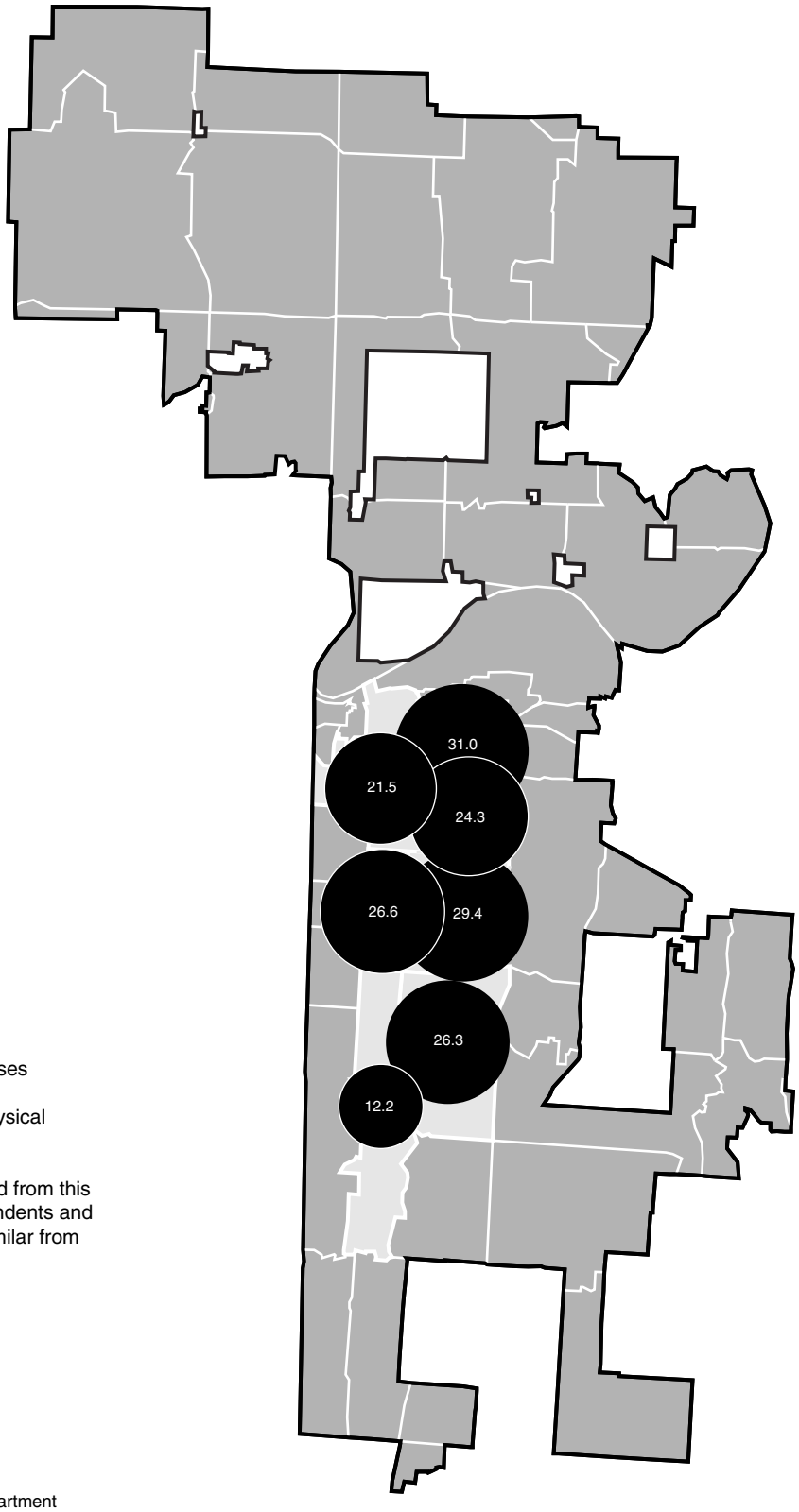
Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 13. Weighted Physical Inactivity Prevalence by ZIP Code for People Age 18 or Older



Rate per 100



Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted physical inactivity prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 14. Estimated Number of Physical Inactivity Cases by ZIP Code for People Age 18 or Older

The estimated number of physical inactivity cases for each area was calculated by multiplying the area's susceptible population by its weighted physical inactivity prevalence rate for people age 18 or older.

Total population age 18 or older in study area = 116,672

Estimated total number of physical inactivity cases for people age 18 or older in study area = 28,234

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted physical inactivity prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

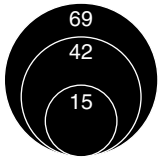
ZIP code included in study area

ZIP code not included in study area

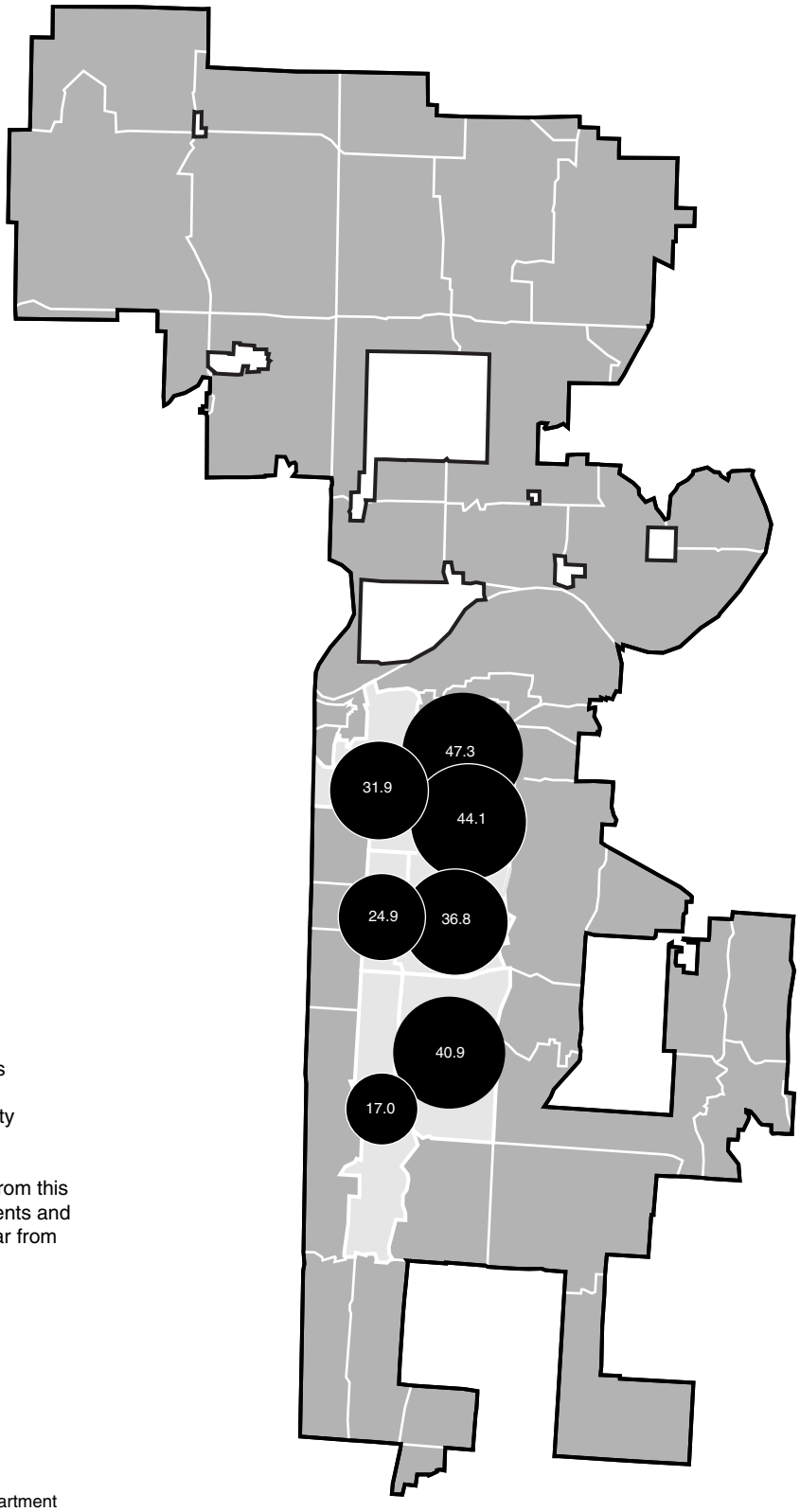
Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 15. Weighted Obesity Prevalence by ZIP Code for All People Age 18 or Older



Rate per 100



Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted obesity prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

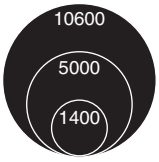
ZIP code included in study area

ZIP code not included in study area

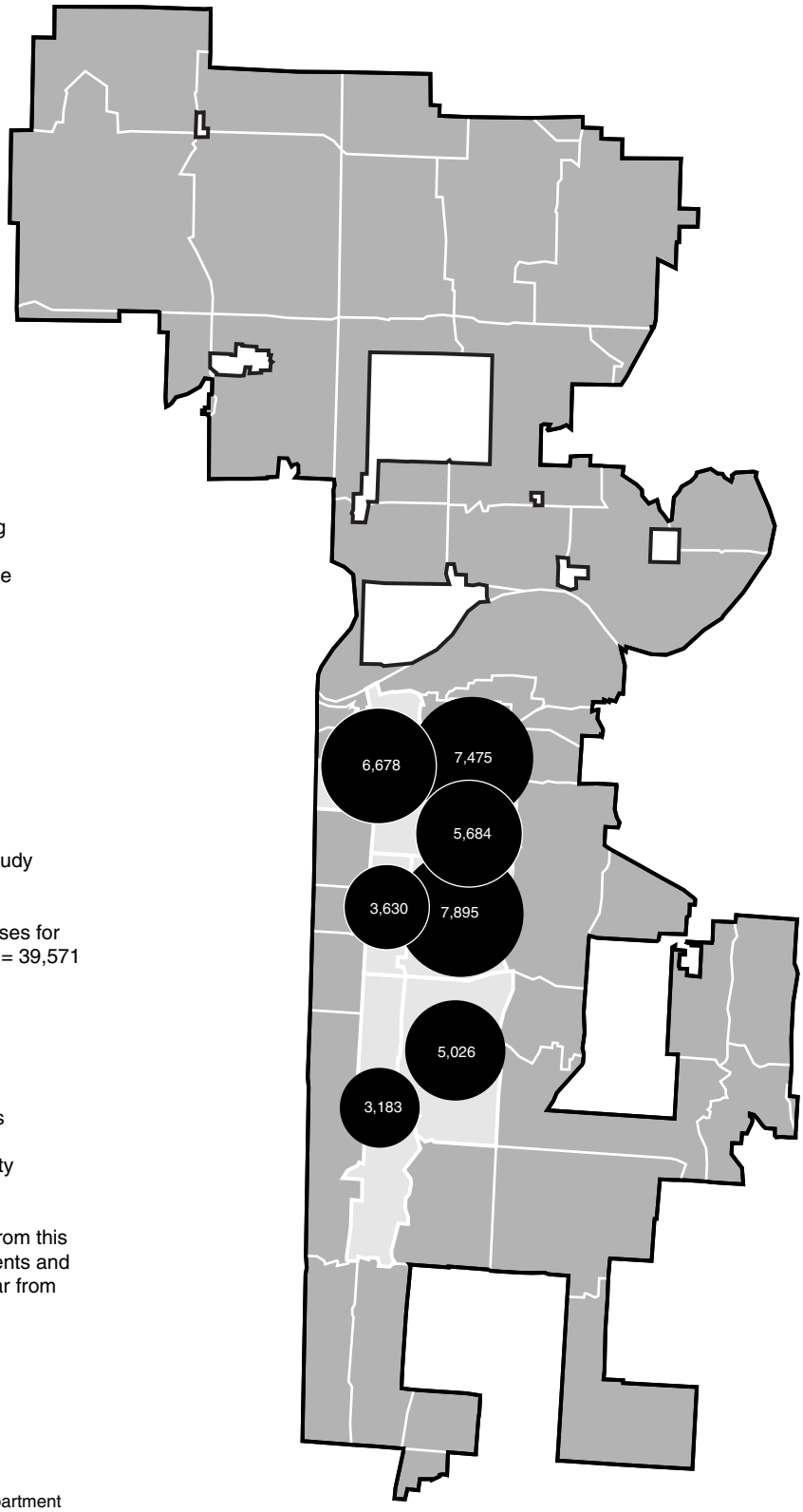
Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 16. Estimated Number of Obesity Cases by ZIP Code for People Age 18 or Older



The estimated number of obesity cases for each area was calculated by multiplying the area's susceptible population by its weighted obesity prevalence rate for people age 18 or older.



Total population age 18 or older in study area = 116,672

Estimated total number of obesity cases for people age 18 or older in study area = 39,571

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted obesity prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

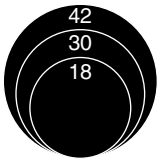
ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 17. Weighted Hypertension Prevalence by ZIP Code for People Age 18 or Older



Rate per 100

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted hypertension prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

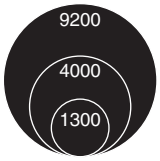
ZIP code included in study area

ZIP code not included in study area

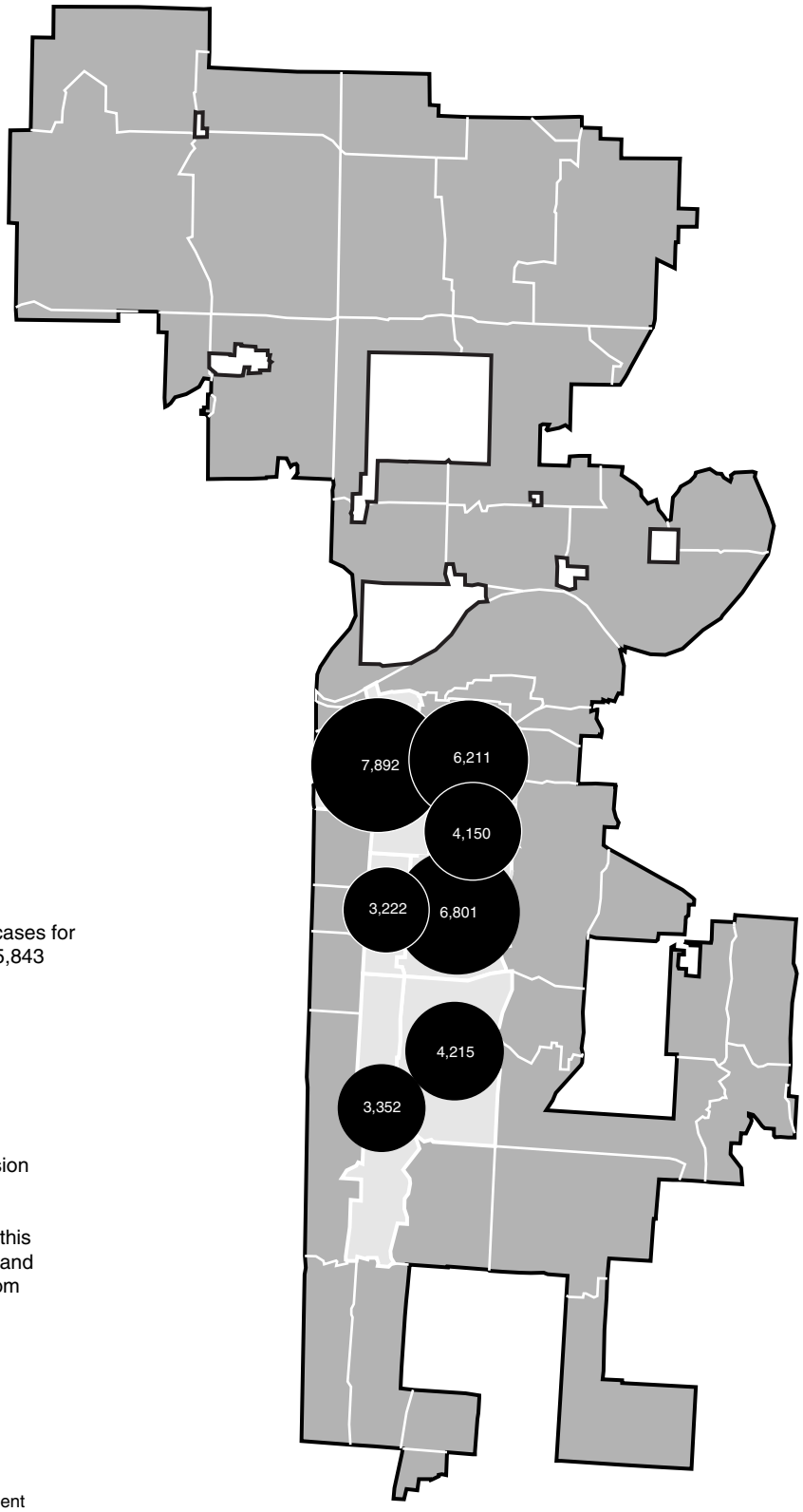
Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 18. Estimated Number of Hypertension Cases by ZIP Code for People Age 18 or Older



The estimated number of hypertension cases for each area was calculated by multiplying the area's susceptible population by its weighted hypertension prevalence rate for people age 18 or older.



Total population age 18 or older in study area = 116,672

Estimated total number of hypertension cases for people age 18 or older in study area = 35,843

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted hypertension prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

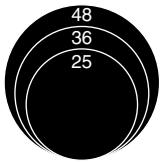
ZIP code included in study area

ZIP code not included in study area

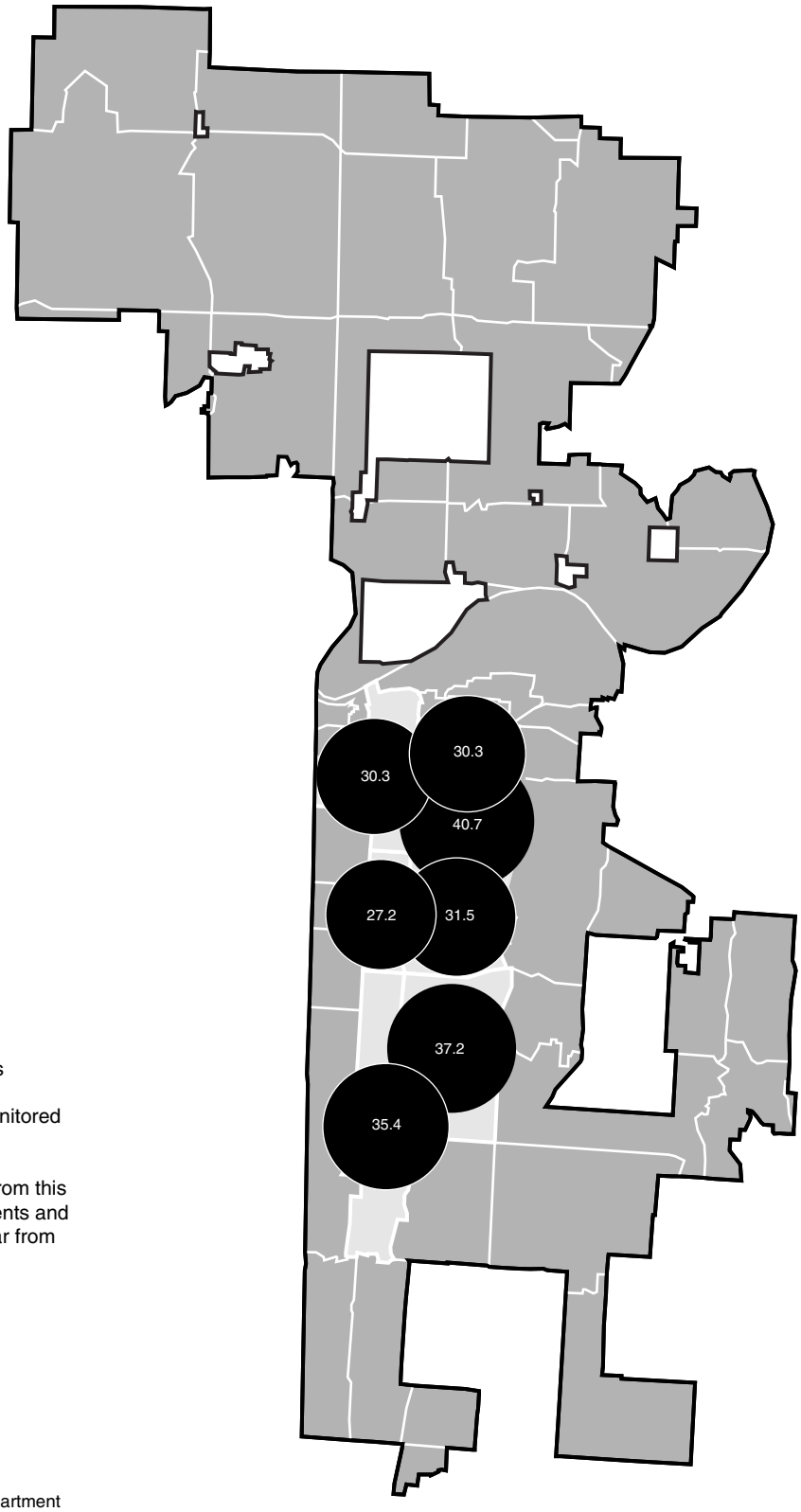
Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 19. Weighted Unmonitored Cholesterol Prevalence by ZIP Code for People Age 18 or Older



Rate per 100



Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted unmonitored cholesterol prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

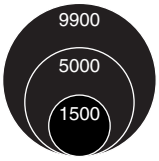
ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 20. Estimated Number of Unmonitored Cholesterol Cases by ZIP Code for People Age 18 or Older



The estimated number of unmonitored cholesterol cases for each area was calculated by multiplying the area's susceptible population by its weighted unmonitored cholesterol prevalence rate for people age 18 or older.

Total population age 18 or older in study area = 116,672

Estimated total number of unmonitored cholesterol cases for people age 18 or older in study area = 38,300

Contiguous ZIP codes aggregated

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted unmonitored cholesterol prevalence rate.

Data from ZIP code 64105 were dropped from this analysis as there were only three respondents and the area was too demographically dissimilar from the others to be grouped.

ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Current Smoking

The weighted prevalence of current smoking in the Bootheel region can be seen in Map 21. The rates were similar in all areas.

Map 22 shows the estimated cases of current smoking in the Bootheel region. The highest number of cases came from the area containing ZIP codes 63830, 63851 and 63879. The smallest number of cases came from ZIP code 63863.

Physical Inactivity

The weighted prevalence of physical inactivity in the Bootheel region can be seen in Map 23. The highest rates were found in the two contiguous areas containing ZIP codes 63830, 63851 and 63879, and 63862, 63866 and 63869. The lowest rate was found in the area containing ZIP codes 63823 and 63834.

Map 24 shows the estimated cases of physical inactivity in the Bootheel region. The highest number of cases came from the area containing ZIP codes 63830, 63851 and 63879. The smallest number of cases came from ZIP codes 63823 and 63834.

Obesity

The weighted prevalence of obesity in the Bootheel region can be seen in Map 25. The highest rate was found in the area containing ZIP codes 63830, 63851 and 63879, while the other areas had similar rates.

Map 26 shows the estimated cases of obesity in the Bootheel region. The highest number of cases came from the area containing ZIP codes 63830, 63851 and 63879. The other areas have a similar amount of estimated cases.

Hypertension

The weighted prevalence of hypertension in the Bootheel region can be seen in Map 27. The highest rate was found in the area containing ZIP codes 63862, 63866 and 63869, while the other areas had a similar prevalence of hypertension.

Map 28 shows the estimated cases of hypertension in the Bootheel region. The highest number of cases came from the area containing ZIP codes 63830, 63851 and 63879. The smallest number of cases came from ZIP codes 63863, 63823 and 63834.

Unmonitored Cholesterol

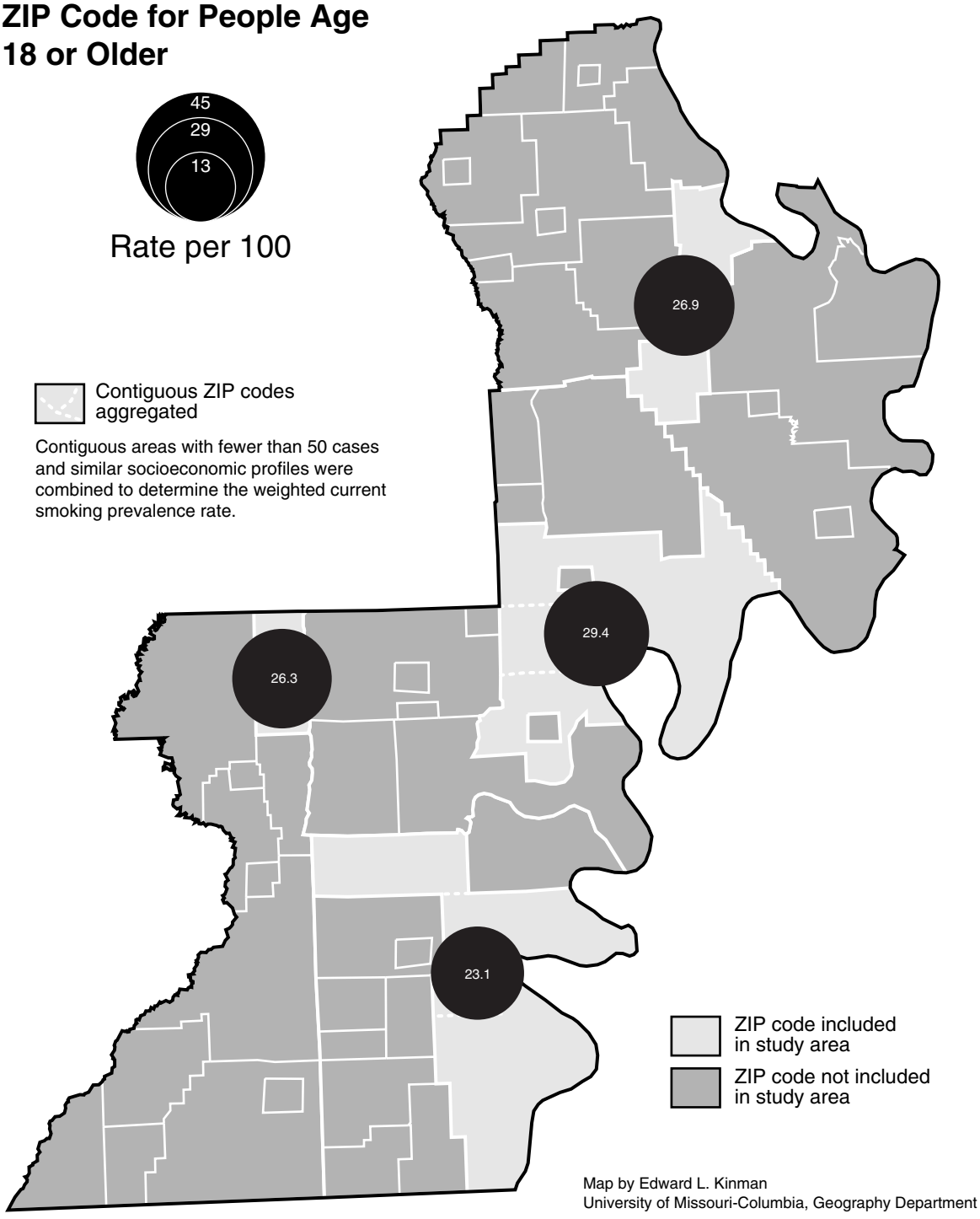
The weighted prevalence of unmonitored cholesterol in the Bootheel region can be seen in map 29. The lowest rate was found in ZIP code 63863, while the other areas had a similar prevalence of unmonitored cholesterol.

Map 30 shows the estimated cases of unmonitored cholesterol in the Bootheel region. The highest number of cases came from the area containing ZIP codes 63830, 63851 and 63879. The smallest number of cases came from ZIP code 63863.

Note: *See Map 35 for zip code references and Map 36 for unweighted number of study participants by zip code.*

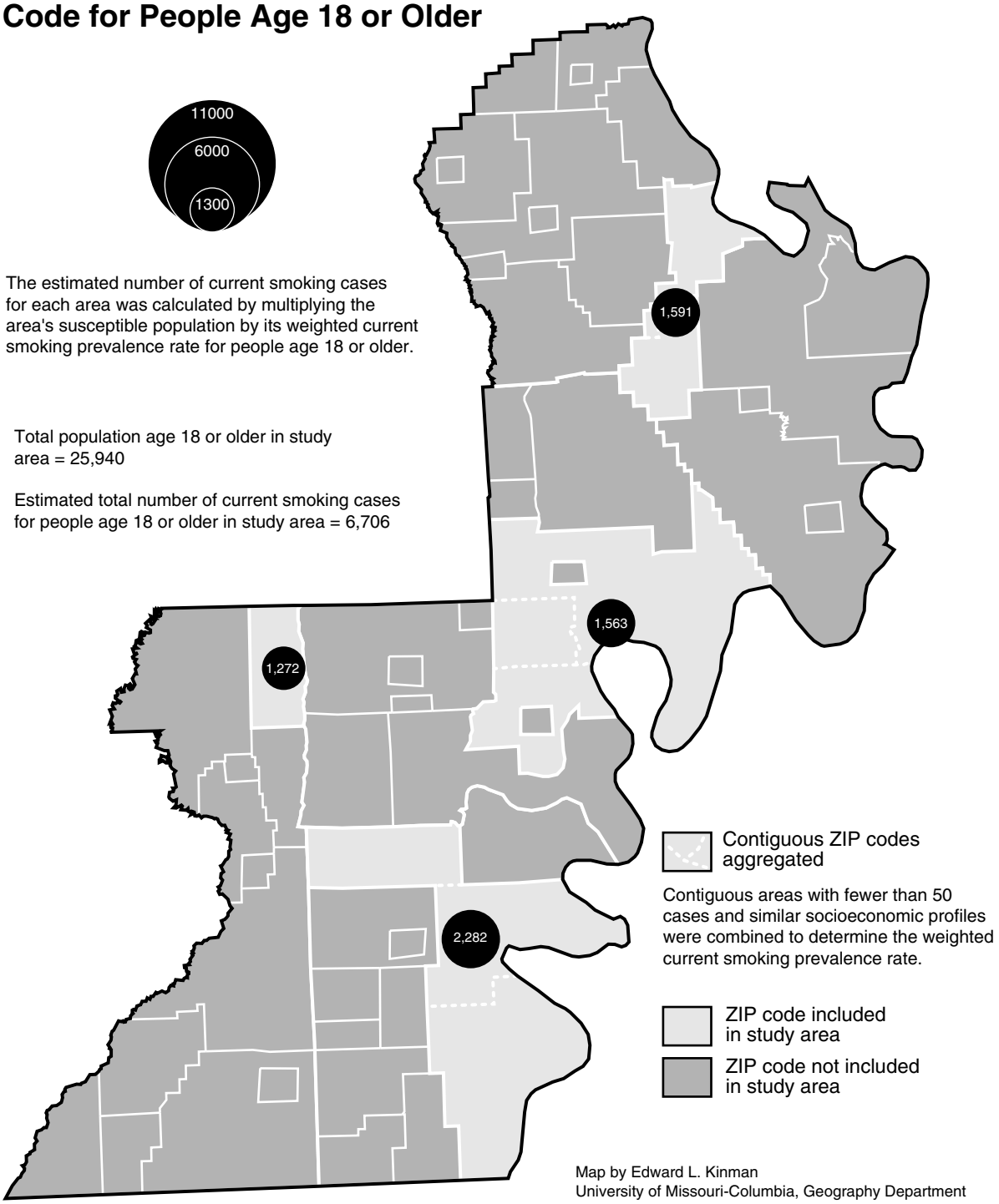
Bootheel Region

Map 21. Weighted Current Smoking Prevalence by ZIP Code for People Age 18 or Older



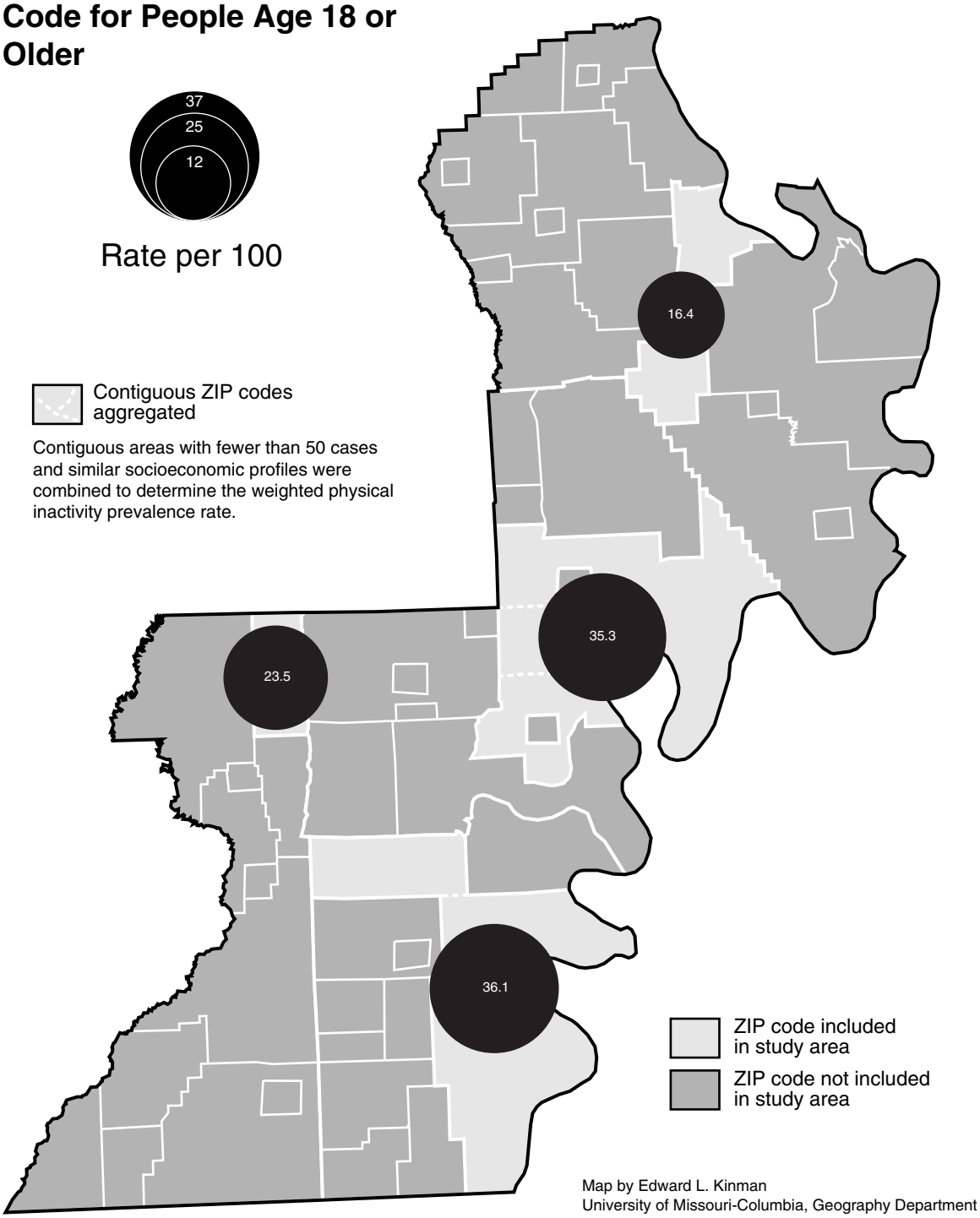
Bootheel Region

Map 22. Estimated Number of Current Smoking Cases by ZIP Code for People Age 18 or Older



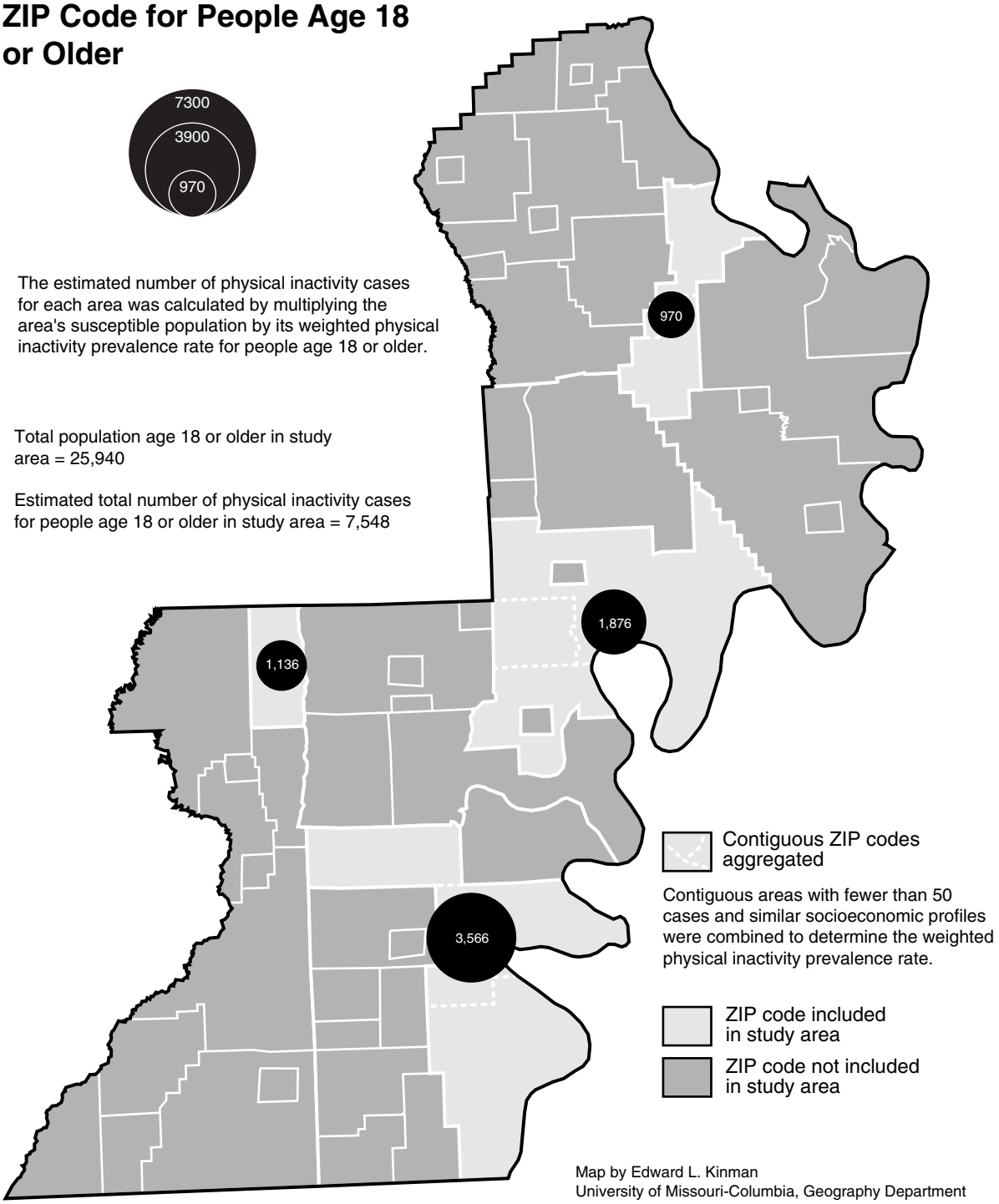
Bootheel Region

Map 23. Weighted Physical Inactivity Prevalence by ZIP Code for People Age 18 or Older



Bootheel Region

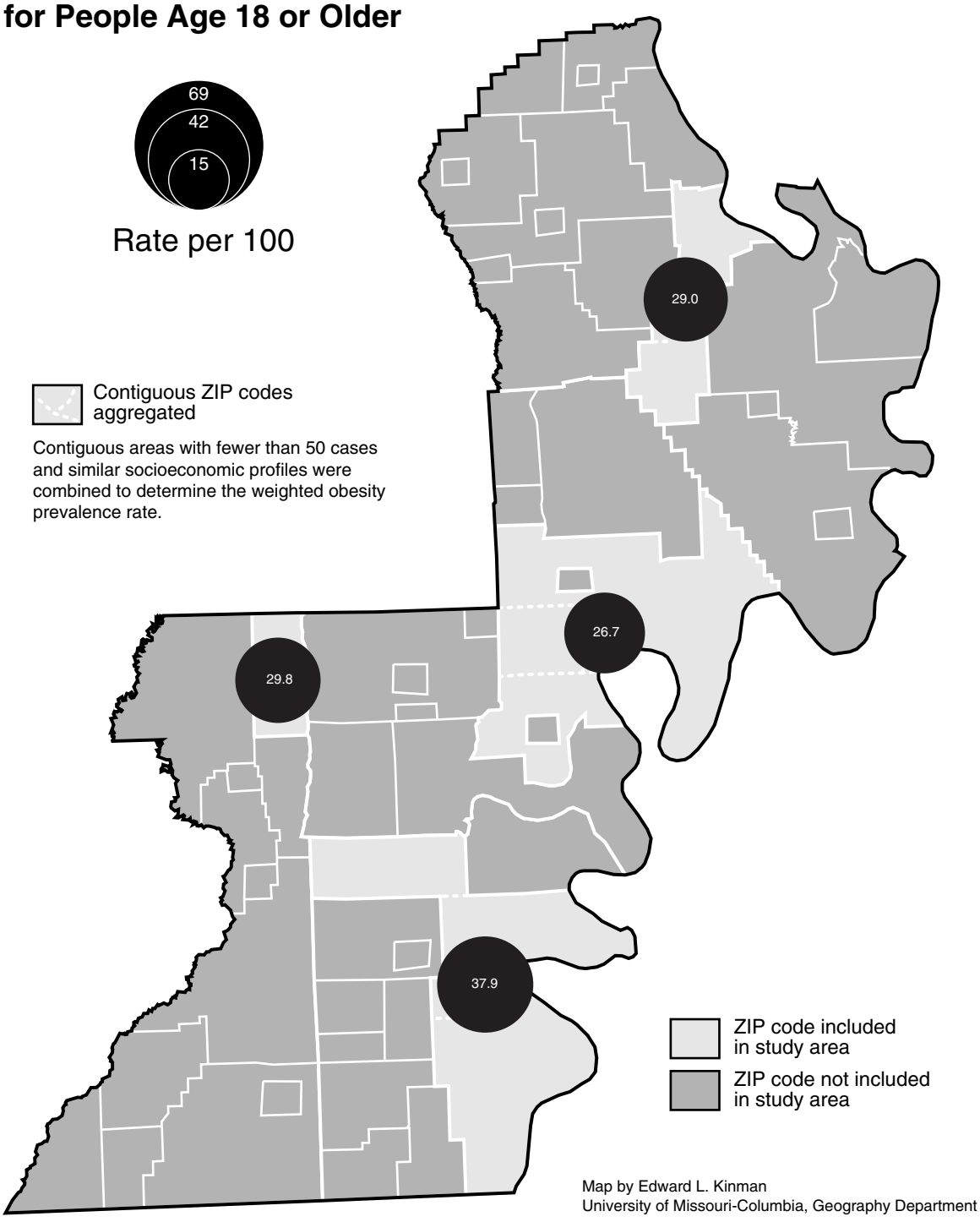
Map 24. Estimated Number of Physical Inactivity Cases by ZIP Code for People Age 18 or Older



Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Bootheel Region

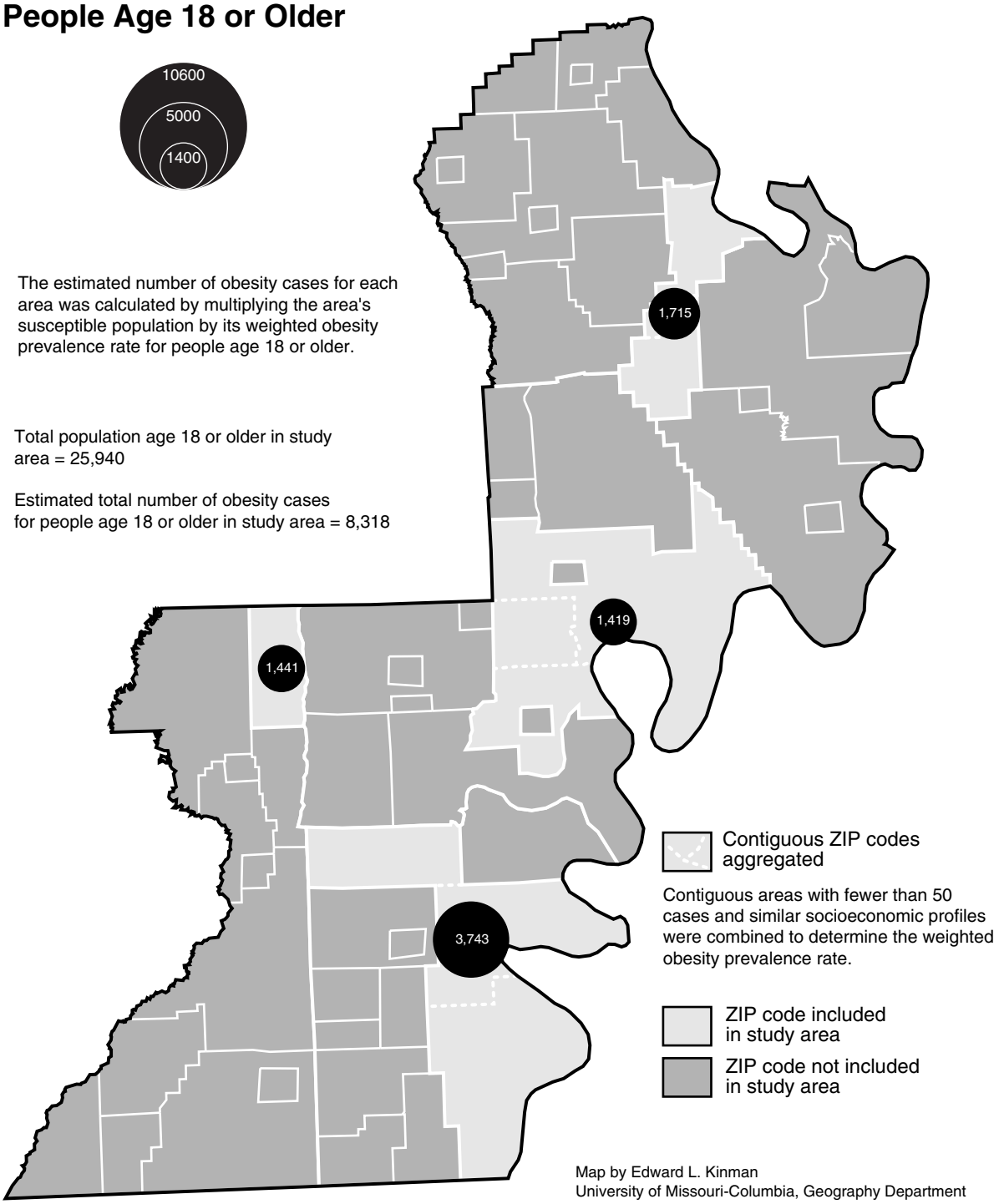
Map 25. Weighted Obesity Prevalence by ZIP Code for People Age 18 or Older



Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Bootheel Region

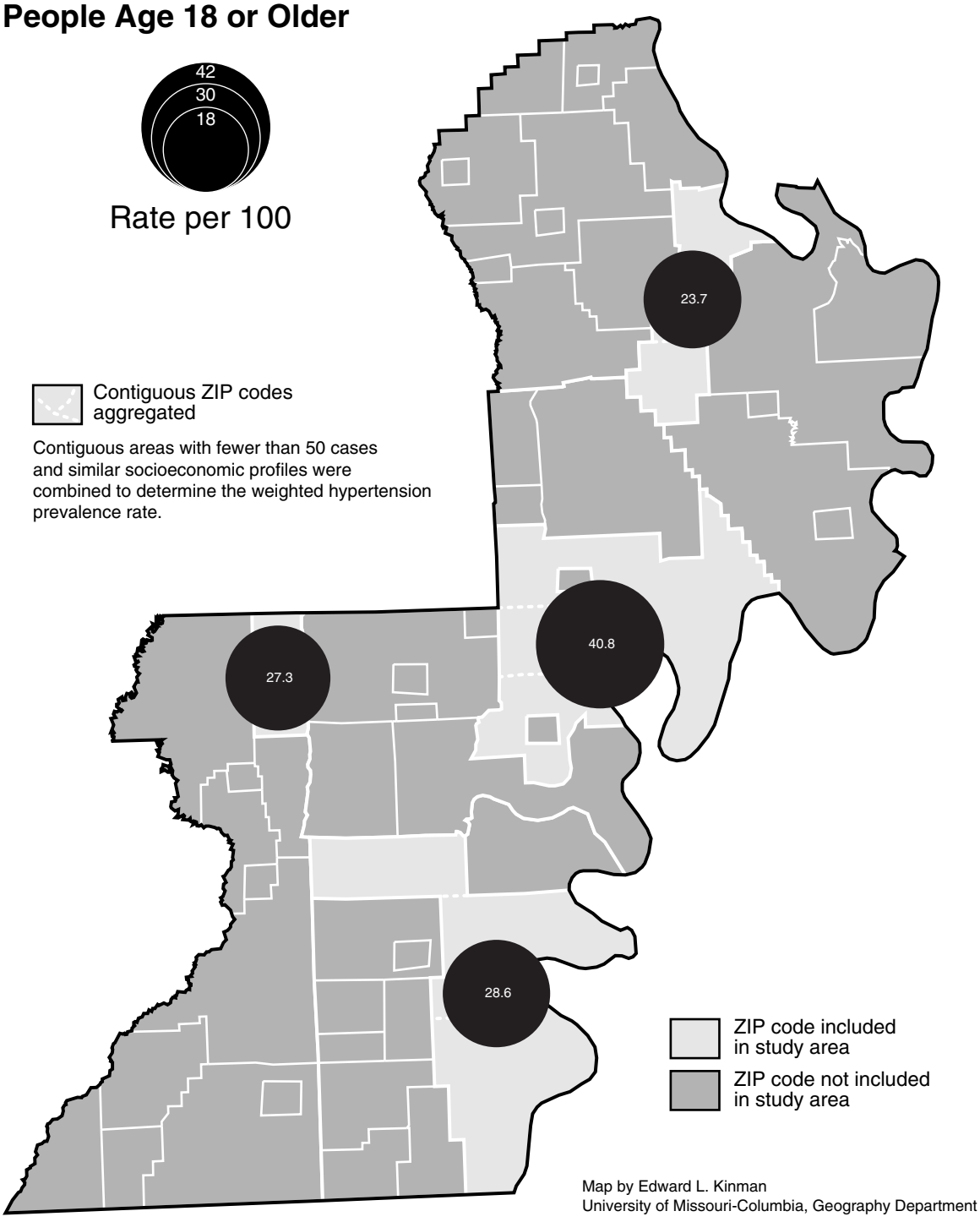
Map 26. Estimated Number of Obesity Cases by ZIP Code for People Age 18 or Older



Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Bootheel Region

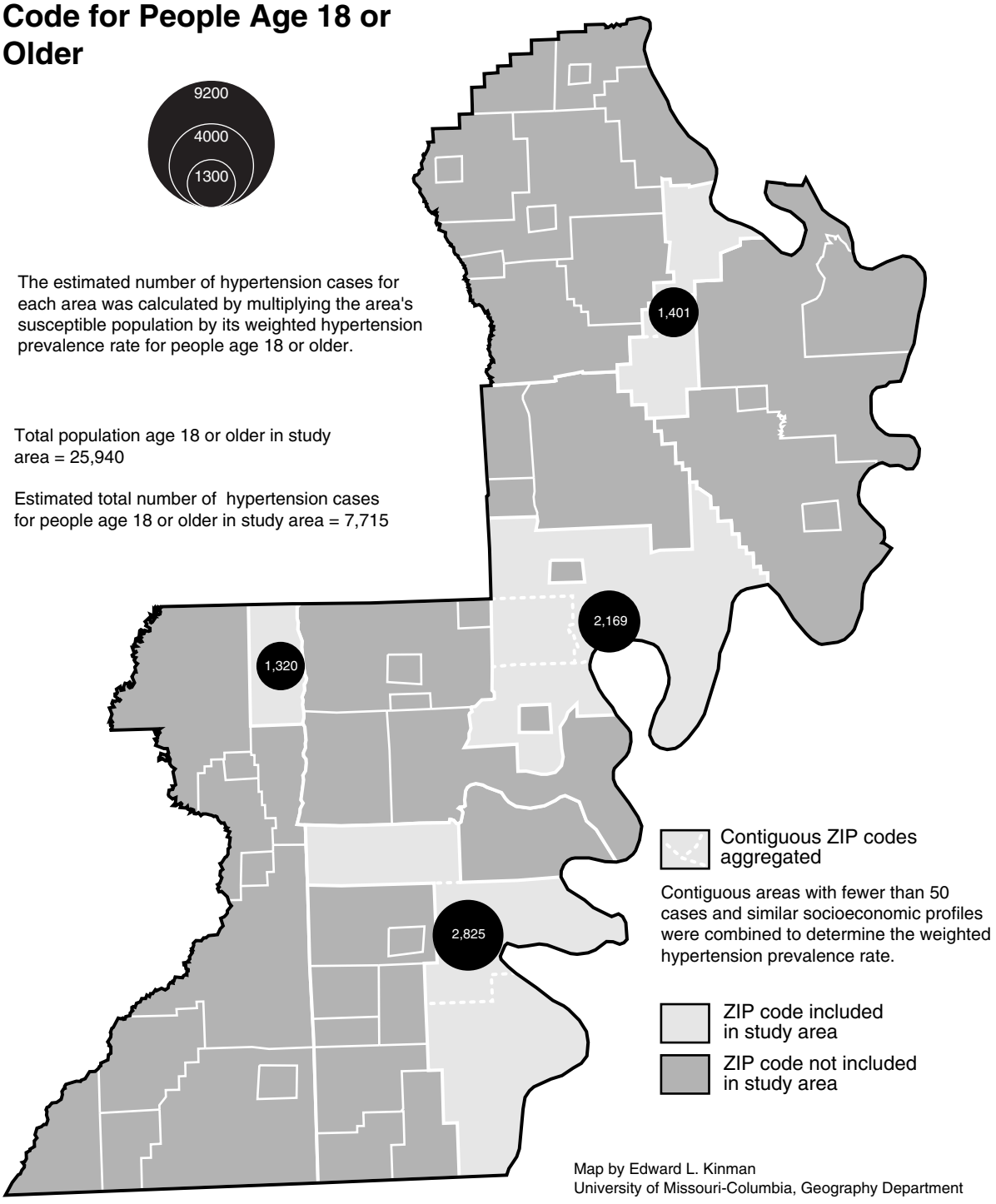
Map 27. Weighted Hypertension Prevalence by ZIP Code for People Age 18 or Older



Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Bootheel Region

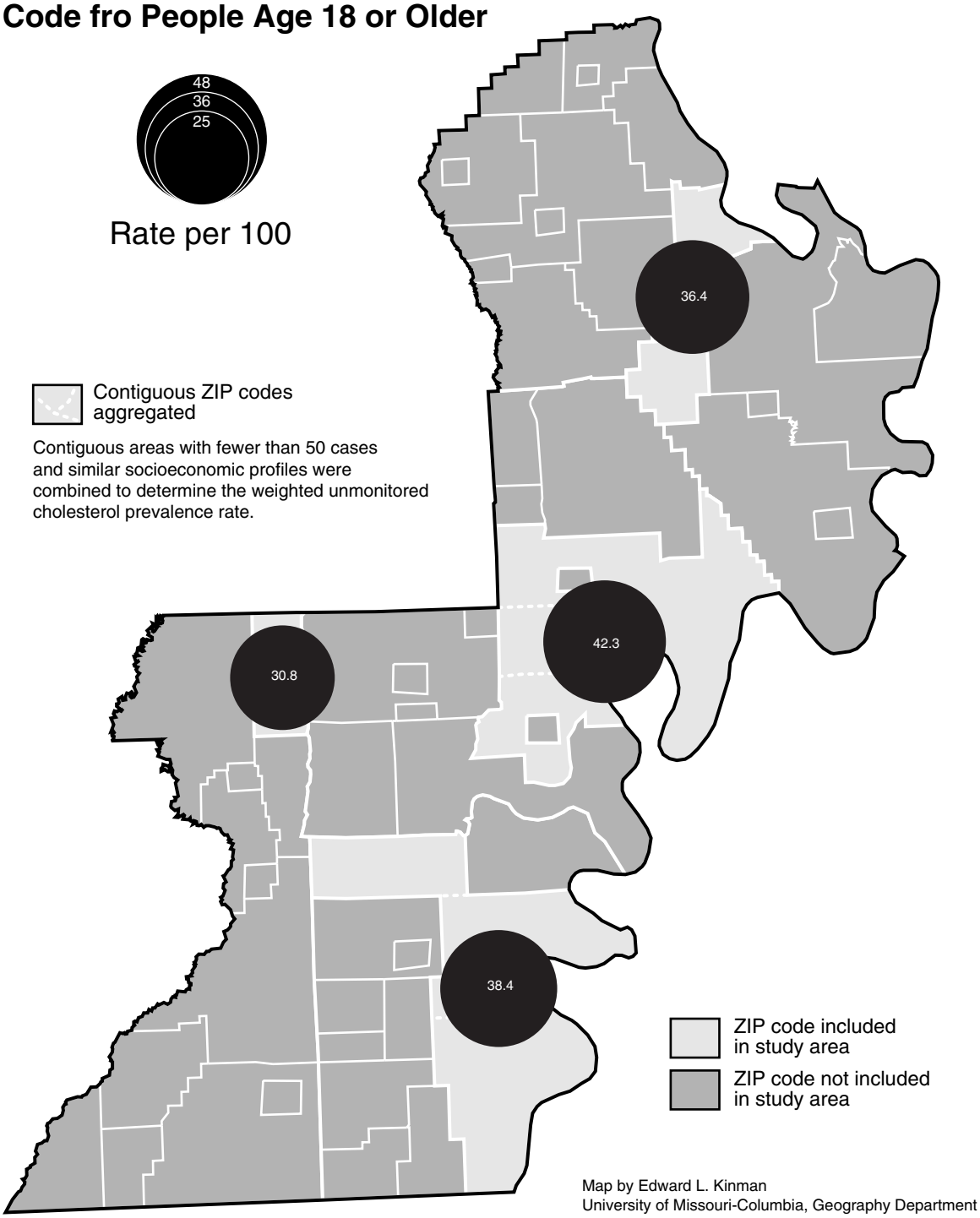
Map 28. Estimated Number of Hypertension Cases by ZIP Code for People Age 18 or Older



Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Bootheel Region

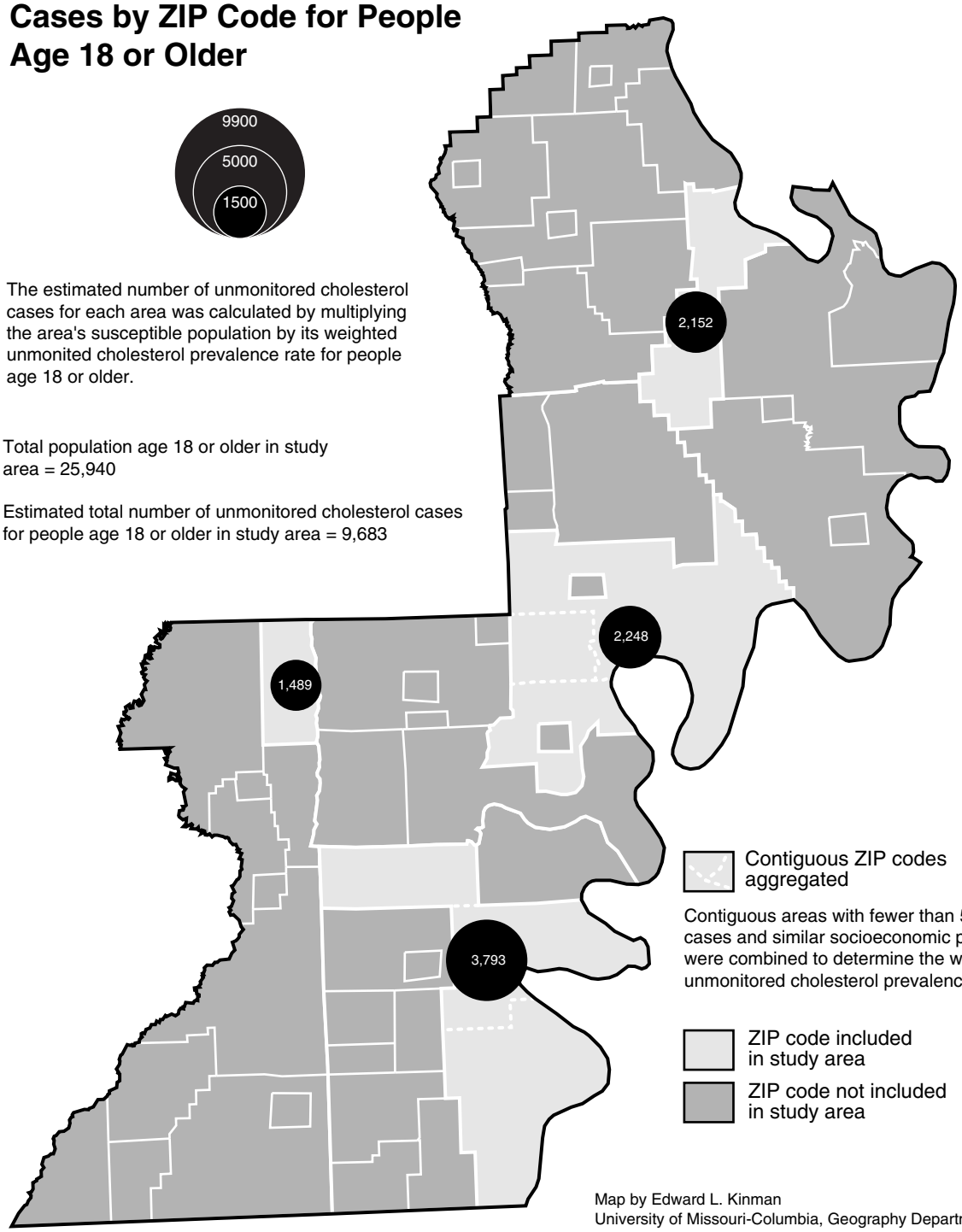
Map 29. Weighted Unmonitored Cholesterol Prevalence by ZIP Code fro People Age 18 or Older



Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Bootheel Region

Map 30. Estimated Number of Unmonitored Cholesterol Cases by ZIP Code for People Age 18 or Older



The estimated number of unmonitored cholesterol cases for each area was calculated by multiplying the area's susceptible population by its weighted unmonited cholesterol prevalence rate for people age 18 or older.

Total population age 18 or older in study area = 25,940

Estimated total number of unmonitored cholesterol cases for people age 18 or older in study area = 9,683

Contiguous areas with fewer than 50 cases and similar socioeconomic profiles were combined to determine the weighted unmonitored cholesterol prevalence rate.

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Conclusions and Recommendations

Compared with statewide prevalence rates, residents of the three-region study area had higher prevalence rates of every modifiable CVD risk factor except physical inactivity in 1996. African Americans had higher overall prevalence rates of all modifiable CVD risk factors than did whites/others. When sociodemographic factors were considered, individuals age 55 and older, those with a high school education or less, and those without health care coverage experienced the highest prevalence rates of modifiable CVD risk factors (see Tables 2-6).

In Missouri and the United States, African Americans experience both higher CVD and CVD risk factor prevalence rates than other ethnic groups. This fact, combined with the relatively slow decrease of modifiable CVD risk factor prevalence rates, could result in serious health risks for African Americans living in Missouri.

Increased efforts are needed to target the subgroups that are most at risk and maintain an overall public health initiative to decrease CVD risk factors. CVD is largely preventable, especially if 1) prevention practices are incorporated into everyday life; 2) the population has easy access to services; and 3) there are community-wide environmental and behavioral changes that allow communities and individuals to take up healthier lifestyles. It is important for health professionals and public health officials to become more involved with interventions that improve CVD risk factor prevalence, especially among the most at-risk populations, in order to continue the positive changes that have occurred.

— Notes —

Table 1: Sociodemographic profile of respondents - Unweighted

		All Respondents	
Variable	Category	Number	Percentage
Age	18-34	580	27.7
	35-54	731	34.9
	55+	771	36.8
	Unknown	13	0.6
Gender	Female	1,309	62.5
	Male	786	37.5
Race	African American	1,320	63.0
	white/other	764	36.5
Education	high school or less	1,171	55.9
	> high school	918	43.8
Location	St. Louis	989	47.2
	Kansas City	703	33.6
	Bootheel	403	19.2
Income	< $15,000	862	41.1
	$15,000-$24,999	429	20.5
	> $25,000	612	29.2
	unknown	192	9.2
Smoking	Current	611	29.2
	Former	452	21.6
	Never	1,029	49.1
Physical Inactivity	No	1,459	69.6
	Yes	636	30.4
Female Obesity	Non-obese	663	53.1
	Obese	586	46.9
Male Obesity	Non-obese	513	66.2
	Obese	262	33.8
Hypertension	No	1,337	35.9
	Yes	750	63.9
	Unknown	5	0.2
Cholesterol Checked	Checked	1,407	67.2
	Never checked	614	29.3
	Unknown	74	3.5

Table 2: Prevalences and Confidence Intervals for Current Smoking

	African-American Females		African-American Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	25.3	(21.2, 29.4)	36.5	(29.3, 43.6)
Age				
18-34	17.0	(11.5, 22.5)	33.7	(21.2, 46.3)
35-54	37.6	(29.6, 45.6)	49.6	(39.8, 59.3)
55+	23.8	(16.3, 31.3)	26.4	(16.5, 36.4)
Education				
<High school	36.0	(26.0, 46.0)	46.5	(31.6, 61.4)
High school	24.6	(18.2, 31.0)	36.0	(25.6, 46.4)
>High school	19.0	(13.6, 24.4)	30.3	(20.2, 40.3)
Region				
St. Louis	24.7	(19.3, 30.2)	39.0	(28.6, 49.3)
Kansas City	26.7	(20.0, 33.4)	33.6	(24.4, 42.7)
Bootheel	21.1	(6.4, 35.8)	22.7	(0.7, 44.7)
Health Coverage				
Yes	22.8	(18.4, 27.2)	32.1	(24.4, 39.8)
No	37.7	(27.0, 48.4)	46.0	(32.5, 59.6)

	White/Other Females		White/Other Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	25.6	(19.2, 31.9)	27.7	(20.9, 34.5)
Age				
18-34	32.2	(19.6, 44.9)	28.4	(16.7, 40.1)
35-54	33.1	(21.2, 44.9)	33.4	(20.7, 46.0)
55+	13.9	(5.8, 21.9)	19.8	(10.3, 29.4)
Education				
>High school	38.2	(21.3, 55.0)	57.7	(38.1, 77.3)
High school	29.3	(16.3, 42.3)	28.4	(13.8, 43.1)
>High school	20.2	(12.3, 28.1)	22.6	(14.8, 30.5)
Region				
St. Louis	20.4	(11.6, 29.1)	27.2	(14.6, 39.7)
Kansas City	29.5	(18.1, 40.8)	29.1	(19.3, 38.9)
Bootheel	27.5	(15.2, 39.8)	25.7	(15.6, 35.7)
Health Coverage				
Yes	21.3	(15.1, 27.4)	23.1	(16.2, 30.0)
No	58.3	(37.9, 78.7)	55.7	(33.3, 78.1)

	All Females		All Males		Overall	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	25.5	(22.1, 28.9)	33.3	(28.1, 38.5)	29.0	(25.9, 32.1)
Age						
18-34	22.1	(16.4, 27.8)	31.8	(22.9, 40.6)	26.7	(21.4, 32.1)
35-54	36.3	(29.9, 42.6)	43.4	(35.6, 51.2)	39.6	(34.6, 44.7)
55+	20.0	(14.3, 25.6)	24.0	(16.8, 31.1)	21.5	(17.1, 26.0)
Education						
<High school	36.3	(27.7, 44.9)	48.7	(35.9, 61.5)	41.7	(34.4, 48.9)
High school	25.9	(20.5, 31.3)	33.7	(25.1, 42.3)	29.1	(24.2, 33.9)
>High school	19.9	(15.4, 24.4)	27.0	(20.7, 33.3)	23.4	(19.4, 27.3)
Region						
St. Louis	23.5	(18.9, 28.2)	35.4	(27.0, 43.8)	28.8	(24.1, 33.5)
Kansas City	28.1	(22.3, 33.8)	32.2	(25.6, 38.7)	30.0	(25.5, 34.4)
Bootheel	25.9	(15.9, 35.9)	25.3	(16.2, 34.3)	25.6	(18.7, 32.5)
Health Coverage						
Yes	22.4	(18.8, 25.9)	28.4	(23.2, 33.7)	24.9	(21.7, 28.1)
No	42.9	(32.9, 52.9)	48.2	(36.5, 59.8)	45.9	(38.0, 53.8)

Table 3: Prevalences and Confidence Intervals for Physical Inactivity

	African-American Females		African-American Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	33.5	(28.9, 38.2)	22.5	(16.8, 28.2)
Age				
18-34	24.3	(16.7, 31.9)	21.0	(10.8, 31.1)
35-54	34.6	(27.0, 42.1)	18.8	(11.1, 26.5)
55+	43.6	(35.9, 51.3)	28.9	(19.6, 38.3)
Educaton				
<High school	44.4	(34.9, 53.8)	25.0	14.6, 35.4)
High school	36.7	(29.0, 44.4)	25.0	(15.5, 34.5)
>High school	23.2	(16.7, 29.8)	18.8	(10.4, 27.3)
Region				
St. Louis	34.5	(28.3, 40.7)	23.3	(14.9, 31.7)
Kansas City	31.8	(24.4, 39.2)	20.8	(13.8, 27.7)
Bootheel	35.2	(16.9, 53.5)	29.2	(8.1, 50.2)
Health Coverage				
Yes	33.2	(28.0, 38.4)	24.9	(17.7, 32.1)
No	35.1	(24.7, 45.6)	17.3	(8.7, 25.9)

	White/Other Females		White/Other Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	17.6	(12.4, 22.8)	19.0	(13.1, 24.9)
Age				
18-34	6.3	(0.0, 12.7)	8.7	(2.3, 15.1)
35-54	24.9	(13.9, 35.9)	12.1	(5.5, 18.7)
55+	22.8	(13.5, 32.1)	42.1	(27.8, 56.3)
Education				
<High school	31.8	(16.5, 47.1)	39.7	(20.1, 59.2)
High school	19.1	(9.7, 28.4)	30.2	(13.0, 47.4)
>High school	12.9	(6.3, 19.6)	12.5	(7.0, 18.0)
Region				
St. Louis	11.8	(4.1, 19.5)	14.7	(4.0, 25.4)
Kansas City	18.1	(9.5, 26.7)	19.9	(12.0, 27.7)
Bootheel	28.2	(16.9, 39.5)	26.6	(15.0, 38.2)
Health Coverage				
Yes	18.7	(12.9, 24.6)	19.2	(12.6, 25.8)
No	9.3	(0.4, 18.3)	17.6	(6.3, 28.9)

	All Females		All Males		Overall	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	28.3	(24.5, 32.0)	21.0	(16.9, 25.1)	25.0	(22.3, 27.7)
Age						
18-34	18.9	(13.3, 24.6)	16.8	(10.0, 23.5)	17.9	(13.6, 22.2)
35-54	31.6	(25.1, 38.1)	15.8	(10.7, 21.0)	24.2	(20.1, 28.3)
55+	35.6	(29.4, 41.9)	33.6	(25.4, 41.7)	34.8	(29.8, 39.8)
Education						
<High school	41.1	(33.0, 49.2)	27.9	(18.5, 37.4)	35.4	(29.3, 41.5)
High school	32.1	(25.7, 38.5)	26.2	(18.1, 34.2)	29.7	(24.7, 34.7)
>High school	19.0	14.0, 23.9)	15.5	(10.6, 20.4)	17.3	(13.9, 20.7)
Region						
St. Louis	28.8	(23.8, 33.8)	21.0	(14.3, 27.7)	25.3	(21.2, 29.5)
Kansas City	27.1	(20.7, 33.5)	19.8	(14.8, 24.7)	23.7	(19.9, 27.5)
Botheel	30.0	(20.4, 39.6)	27.2	(17.1, 37.3)	28.8	(21.8, 35.7)
Health Coverage						
Yes	28.2	(24.1, 32.3)	22.2	(17.3, 27.1)	25.7	(22.6, 28.8)
No	28.3	(19.8, 36.7)	17.5	(10.3, 24.8)	22.1	(16.7, 27.6)

Table 4: Prevalences and Confidence Intervals for Obesity

	African-American Females		African-American Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	52.7	(47.4, 58.0)	39.0	(32.3, 45.7)
Age				
18-34	43.7	(33.4, 54.1)	38.5	(26.5, 50.6)
35-54	56.1	(47.0, 65.1)	31.5	(22.7, 40.4)
55+	60.3	(52.3, 68.2)	47.7	(36.3, 59.0)
Education				
<High school	61.6	(52.3, 70.9)	44.8	(29.7, 59.9)
High school	49.6	(41.4, 57.9)	38.3	(27.0, 49.7)
>High school	50.0	(40.7, 59.2)	35.7	(26.2, 45.3)
Region				
St. Louis	55.2	(48.1, 62.2)	42.5	(33.1, 51.8)
Kansas City	49.5	(41.4, 57.6)	33.2	(23.8, 42.5)
Bootheel	41.8	(21.2, 62.4)	43.5	(18.9, 68.0)
Health Coverage				
Yes	53.8	(47.9, 59.7)	42.1	(34.0, 50.1)
No	47.2	(36.1, 58.3)	32.2	(19.5, 44.9)

	White/Other Females		White/Other Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	25.8	(19.8, 31.8)	30.0	(21.9, 38.1)
Age				
18-34	10.2	(2.1, 18.3)	26.6	(11.7, 41.5)
35-54	33.3	(22.2, 44.5)	34.5	(20.9, 48.1)
55+	34.8	(23.6, 45.9)	29.5	(17.7, 41.2)
Education				
LT HS	29.3	(14.2, 44.4)	27.9	(10.6, 45.1)
HS	33.5	(20.9, 46.0)	27.8	(12.9, 42.6)
GT HS	21.1	(13.3, 28.9)	30.9	(20.5, 41.4)
Region				
STL	22.4	(12.2, 32.5)	29.4	(13.5, 45.2)
KC	27.3	(18.0, 36.5)	27.3	(16.8, 37.8)
BH	29.5	(16.8, 42.3)	37.4	(25.5, 49.3)
Health Coverage				
Yes	25.9	(19.5, 32.3)	31.4	(22.3, 40.5)
No	25.1	(5.0, 45.2)	21.4	(6.3, 36.6)

	All Females		All Males		Overall	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	44.0	(39.6, 48.4)	35.3	(30.0, 40.5)	40.1	(36.6, 43.5)
Age						
18-34	33.7	(25.3, 42.2)	33.8	(24.6, 43.0)	33.8	(27.6, 39.9)
35-54	49.0	(41.5, 56.5)	32.1	(24.7, 39.5)	41.1	(35.9, 46.3)
55+	51.0	(44.4, 57.6)	41.0	(32.3, 49.7)	47.0	(41.3, 52.7)
Educaton						
<High school	54.0	(45.6, 62.3)	41.2	(28.9, 53.4)	48.4	(41.2, 55.7)
High school	45.6	(38.7, 52.6)	35.9	(26.7, 45.1)	41.7	(36.1, 47.3)
>High school	37.8	(30.9, 44.8)	32.6	(25.7, 39.5)	35.3	(30.4, 40.1)
Region						
St. Louis	47.4	(41.2, 53.6)	38.0	(29.9, 46.1)	43.2	(38.1, 48.3)
Kansas City	41.8	(34.8, 48.8)	30.9	(23.8, 38.0)	36.8	(31.6, 42.0)
Bootheel	32.7	(22.0, 43.3)	38.6	(27.8, 49.3)	35.3	(27.7, 42.9)
Health Coverage						
Yes	44.4	(39.5, 49.2)	37.1	(31.0, 43.1)	41.3	(37.3, 45.3)
No	41.7	(32.1, 51.3)	29.7	(19.6, 39.7)	34.8	(27.5, 42.1)

Table 5: Prevalences and Confidence Intervals for Hypertension

	African-American Females		African-American Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	39.5	(34.6, 44.4)	27.4	(21.9, 32.9)
Age				
18-34	19.5	(12.0, 27.0)	6.7	(1.7, 11.8)
35-54	34.6	(26.5, 42.6)	29.8	(21.5, 38.1)
55+	67.8	(61.0, 74.5)	56.3	(44.6, 67.9)
Education				
<High school	59.3	(50.3, 68.4)	42.2	(28.1, 56.4)
High school	34.5	(27.3, 41.7)	20.2	(12.0, 28.5)
>High school	31.5	(23.6, 39.4)	23.9	(16.8, 30.9)
Region				
St. Louis	41.7	(35.0, 48.4)	25.9	(18.1, 33.6)
Kansas City	35.5	(28.2, 42.8)	29.6	(21.8, 37.3)
Botheel	42.1	(22.0, 62.1)	31.7	(10.4, 53.0)
Health Coverage				
Yes	41.8	(36.3, 47.3)	34.1	(26.9, 41.3)
No	28.1	(18.8, 37.4)	12.9	(5.9, 19.8)

	White/Other Females		White/Other Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	22.4	(16.9, 27.8)	25.0	(18.2, 31.8)
Age				
18-34	2.1	(0.0, 4.4)	11.9	(4.0, 19.8)
35-54	24.6	(14.1, 35.1)	18.2	(8.3, 28.0)
55+	39.5	(28.5, 50.6)	52.0	(38.4, 65.6)
Education				
<High school	43.8	(26.2, 61.5)	22.4	(5.8, 39.0)
High school	25.0	(14.1, 35.9)	30.4	(11.8, 48.9)
>High school	15.0	(8.9, 21.2)	23.9	(15.9, 31.9)
Region				
St. Louis	15.4	(7.8, 22.9)	27.4	(13.8, 40.9)
Kansas City	27.1	(17.5, 36.8)	20.6	(12.6, 28.7)
Bootheel	26.1	(15.9, 36.2)	29.4	(17.4, 41.3)
Health Coverage				
Yes	21.2	(15.8, 26.6)	26.0	(18.5, 33.5)
No	31.0	(9.6, 52.5)	18.6	(4.5, 32.6)

	All Females		All Males		Overall	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	33.7	(29.9, 37.5)	26.4	(22.2, 30.7)	30.4	(27.6, 33.3)
Age						
18-34	14.3	(8.9, 19.7)	8.3	(4.1, 12.5)	11.4	(8.0, 14.9)
35-54	31.4	(24.9, 37.8)	25.9	(19.5, 32.3)	28.8	(24.3, 33.4)
55+	57.0	(50.5, 63.5)	54.9	(46.1, 63.6)	56.2	(50.9, 61.4)
Education						
<High school	55.3	(46.9, 63.6)	38.2	(26.4, 49.9)	47.8	(40.4, 55.3)
High school	31.8	(25.7, 37.9)	22.5	(14.7, 30.2)	28.0	(23.0, 33.1)
>High school	24.6	(19.1, 30.1)	24.1	(18.7, 29.5)	24.3	(20.6, 28.0)
Region						
St. Louis	35.1	(29.7, 40.6)	26.1	(19.3, 32.8)	31.1	(26.8, 35.4)
Kansas City	32.5	(26.4, 38.6)	26.2	(20.6, 31.8)	29.6	(25.4, 33.8)
Bootheel	30.1	(21.0, 39.9)	29.8	(19.3, 40.2)	30.0	(22.9, 37.0)
Health Coverage						
Yes	34.6	(30.4, 38.9)	30.5	(25.4, 35.5)	32.9	(29.6, 36.2)
No	28.4	(19.7, 37.1)	14.0	(7.8, 20.2)	20.2	(14.4, 25.9)

Table 6: Prevalences and Confidence Intervals for Unmonitored Cholesterol

	African-American Females		African-American Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	49.2	(27.3, 71.1)	47.8	(40.6, 54.9)
Age				
18-34	52.8	(42.7, 62.9)	63.7	(52.2, 75.2)
35-54	25.1	(18.4, 31.8)	41.7	(31.5, 51.9)
55+	23.1	(16.1, 30.1)	30.0	(19.7, 40.3)
Education				
<High school	39.0	(29.8, 48.3)	54.5	(40.4, 68.6)
High school	43.1	(34.5, 51.6)	53.3	(42.1, 64.6)
>High school	24.3	(16.8, 31.7)	38.7	(28.1, 49.2)
Region				
St. Louis	36.0	(29.5, 42.5)	52.0	(42.0, 62.0)
Kansas City	33.3	(25.1, 41.4)	41.1	(31.4, 50.7)
Bootheel	35.8	(15.2, 56.4)	47.7	(23.0, 72.4)
Health Coverage				
Yes	31.5	(26.1, 36.9)	44.0	(35.8, 52.2)
No	52.2	(41.0, 63.5)	55.9	(42.8, 69.0)

	White/Other Females		White/Other Males	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	27.2	(20.9, 33.5)	34.2	(25.8, 42.5)
Age				
18-34	44.0	(31.3, 56.8)	47.6	(33.1, 62.2)
35-54	23.5	(12.7, 34.3)	28.0	(15.1, 40.8)
55+	14.3	(5.5, 23.1)	22.2	(11.2, 33.1)
Education				
<High school	24.2	(8.7, 39.6)	45.3	(25.1, 65.6)
High school	28.7	(16.5, 40.8)	31.5	(17.5, 45.5)
>High school	27.3	(18.7, 36.0)	33.1	(22.4, 43.8)
Region				
St. Louis	27.2	(16.1, 38.4)	43.2	(27.4, 59.0)
Kansas City	23.7	(14.0, 33.5)	24.0	(14.7, 33.3)
Bootheel	34.4	(22.3, 46.5)	36.4	(24.6, 48.3)
Health Coverage				
Yes	24.3	(17.7, 30.9)	31.2	(22.1, 40.4)
No	49.2	(27.3, 71.1)	51.9	(30.4, 73.4)

	All Females		All Males		Overall	
	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)	% Prevalence	Confidence Interval (lower, upper)
OVERALL	32.4	(28.7, 36.1)	42.5	(37.1, 47.9)	37.0	(33.7, 40.3)
Age						
18-34	49.7	(41.8, 57.6)	57.6	(48.6, 66.6)	53.5	(47.4, 59.6)
35-54	25.0	(19.7, 30.4)	35.7	(27.9, 43.5)	30.0	(25.3, 34.7)
55+	19.7	(14.3, 25.1)	27.1	(19.5, 34.7)	22.6	(18.1, 27.2)
Education						
<High school	35.9	(27.9, 43.9)	52.7	(40.4, 65.1)	43.2	(35.4, 50.9)
High school	39.3	(32.5, 46.2)	47.7	(38.3, 57.1)	42.7	(37.1, 48.4)
>High school	25.3	(19.6, 31.0)	35.6	(28.4, 42.8)	30.4	(25.8, 34.9)
Region						
St. Louis	34.0	(28.4, 39.6)	49.0	(40.6, 57.5)	40.7	(35.5, 45.9)
Kansas City	29.7	(24.2, 35.1)	34.6	(27.7, 41.5)	31.9	(27.5, 36.3)
Bootheel	34.8	(24.3, 45.3)	39.0	(28.2, 49.7)	36.6	(29.2, 44.0)
Health Coverage						
Yes	29.0	(24.9, 33.1)	38.4	(32.4, 44.4)	33.0	(29.5, 36.4)
No	51.6	(41.6, 61.6)	55.1	(43.5, 66.6)	53.6	(45.7, 61.5)

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Appendix A:

Methods of Sampling and Analysis

Sampling

1996 Cardiovascular Disease Targeted Health Initiative Survey (CVD-THI)

Using random-digit-dialing (RDD) techniques, the Missouri Department of Health, Division of Chronic Disease Prevention and Health Promotion (MDOH-CDPHP), Office of Surveillance, Research and Evaluation (OSRE) and the Center for Advanced Social Research (CASR), University of Missouri-Columbia (MU) School of Journalism, sampled 2,095 individuals from specific zip codes in the City of St. Louis, Kansas City and the extreme southeastern part of the state known as the "Bootheel."

CASR provided a 1990 census data listing of households and respective telephone numbers in the City of St. Louis. A list purchased from a commercial phone bank firm, R.L. Polk Inc., provided full address and household telephone numbers for the Kansas City area. Based on the proportional representation of African Americans, we selected ZIP codes in the city of St. Louis with a 40% or higher African-American population. Seven of the ten zip codes we selected in Kansas City also had an African-American population of 40% or higher; the remaining three zip codes had an African-American population between 20% and 30%. We cross-tabulated the selected zip codes with telephone prefixes using these lists. A combination of area code and prefixes was then used to generate the original list of telephone numbers available for sample, after elimination of prefixes occurring at lower frequency per zip code (20 or less).

The sampling strategy varied by region. For the majority of interviews conducted by OSRE, a two-stage modified Mitofsky-Waksberg sampling frame was used. We first screened a generated random sample of possible telephone numbers to obtain stage one numbers (area code + prefix + suffix). If the stage one number was determined to be a working, residential telephone number, 99 additional numbers having the same first eight digits (i.e., three-digit area code + three-digit prefix + first two digits of the

suffix) were generated. This set of 100 numbers constituted the primary sampling unit (PSU) or cluster. For two smaller areas in both the City of St. Louis and Kansas City, represented by a few zip codes, simple random samples of all possible telephone numbers for the areas were also generated.

For the Bootheel region, CASR used a two-stage cluster sampling technique similar to the above and stratified by two sets of ZIP codes. For another smaller set of telephone numbers in selected zip codes of Kansas City, CASR used a simple random sampling frame as described above.

Once a telephone number was selected, computer-assisted telephone interviewing (CATI) was implemented. CATI allows for random selection of eligible respondents within a household while maintaining the integrity of planned design by keeping the actual versus expected number of interviews per cluster more or less constant. It also allows for standardization in the number of callbacks. For the CASR samples, the CATI system also allowed for an equally likely representation of female, male, older and younger respondents as well as minimum within-sampling-unit non-coverage error.

Prior to excluding from further analyses observations with missing, inappropriate or non-response values for variables included in the analysis, the analytical samples presented varied from 1,903 to 2,095, depending on the variables being cross-tabulated. The fruit/vegetable index variable had more missing observations from analysis than any other variable; 227 respondents (10.8% of the sample) either did not know or failed to provide constituent information. Item non-response greater than three percent was also observed for household income (192 respondents, 9.2% of the sample), unmonitored cholesterol (74 observations, 3.5% of the

sample) and obesity (71 respondents, 3.4% of the sample). For these variables, missing data were imputed using general linear modeling techniques based on the more complete data in the analysis.

For other variables, missing, inappropriate or non-response values constituted one percent or less of the total sample. Observations with residual missing data were excluded from the analysis, leaving a final sample of 1,979 observations.

Analysis

When necessary, data were weighted to compensate for unequal probability of sampling selection as a function of stratification, clustering, unequal number of unique telephone numbers and adults per households. We also weighted the data to compensate for unequal representation of the source population according to sex, race and age (post-stratification). This weighting also minimizes non-response and non-coverage, which are differential across those groups defined by sex, age and race.

We generated weighted prevalence estimates for sociodemographic elements (gender, education level and location of residence), health care coverage (insurance), self-reported hypertension, blood cholesterol screening and other cardiovascular disease related factors, including body mass index (BMI), physical activity and smoking status. In addition, we generated race- and age-specific weighted prevalence estimates and 95% confidence intervals (95% C.I.) for self-reported hypertension, cholesterol screening and other cardiovascular risk factors across levels of age, education, location of residence and health care coverage. We generated race and age specific percentage change in prevalence estimates and 95% confidence intervals (95% C.I.) for hypertension, cholesterol screening and other cardiovascular disease related factors across levels of age, education, location of residence and health care coverage.

Sample Description

The sample respondents were mostly individuals age 45 or older (52.2%), female (62.5%), African-American (63%), with a high school education or less (55.9%) and/or with an annual household income of $15,000 or less (41.1%). The sample has an almost proportional representation of the surveyed areas (City of St. Louis, Kansas City and the Bootheel region). Weighted frequencies minimized some of the above-noted differences by race, gender, age, education, income and region. However, these differences remained after weighting and the distribution closely resembles the 1990 census information on these population subgroups.

Limitations of the Study

Data for this study were collected through telephone interviews with adult (18 years of age and older) residents of the three study areas. As a result, adult residents without access to a residential telephone had no opportunity to be considered during the random selection process. The study focused on the risk factors of African Americans and thus combined whites and others into one group. Modifiable CVD risk factors of Hispanics, Asians and/or Native Americans was not considered.

All of the data are self-reported. Therefore, recall error or bias is always a possibility. Also, the respondents may have compromised their real behavior to look more socially desirable. For example, women are known to under-report their weight and men over-report their height (Hagdrup et al. 1997). This underestimates the BMI for both men and women. Reliability of self-reported high blood cholesterol is poor, thus the report of cholesterol testing may also be poor. However, reliability is strong for self-reported hypertension and smoking.

In order to obtain additional information, and possibly validate telephone survey responses, face-to-face interviews were conducted in one zip code — 63115 — in the City of St. Louis. These results will be reported elsewhere. Residents of zip code 63115 were oversampled in the telephone survey so that comparisons could be made between the face-to-face and telephone interview results. These results will also be reported separately.

Appendix B:

Detailed Analysis of Results

This appendix discusses the 1996 study results in greater detail than presented in the body of the monograph. In particular, we discuss regional and sociodemographic trends in modifiable CVD risk factor prevalence rates.

In 1996, residents of the three-region study area had higher prevalence rates of every modifiable CVD risk factor except physical inactivity. Based on the study results, a greater than high school education is associated with reduced prevalence of all modifiable CVD risk factors. Regionally, the prevalence of obesity was higher in the City of St. Louis than in the other two regions. This was driven by the African-American female population subgroup. Residents of Kansas City had the lowest prevalence of unmonitored cholesterol in all population subgroups. The younger age groups experienced less physical inactivity, hypertension, and obesity, while individuals in the older age groups experienced less unmonitored cholesterol. Health care coverage is associated with a decrease in smoking and unmonitored cholesterol, but an increase in hypertension.

Current smoking rates were highest among individuals age 35-54, with less than a high school education and/or without health care coverage. These trends were consistent across categories of gender and race. Smoking rates decreased with education and were similar across the three regions. Smoking rates were higher in males vs. females. This difference was mostly driven by African Americans. African-American males had higher smoking rates in the 35-54 age group than white/other males, while the prevalence rates for the lowest education group and those without health care coverage were higher for white/other males. Among females, white/other females had higher smoking rates than African-American females in the 18-34 age group and those without health care coverage.

Physical inactivity rates were highest among individuals with less than a high school education and/or over the age of 55. A higher overall rate of physical inactivity was observed for females vs. males. This difference was mostly driven by gender differences among African Americans. There was a large difference between African-American males and females in the 35-54 age group. When African-American and white/other female physical inactivity rates were compared, there were a number of differences. These differences included the 18-34 and 55 and over age groups, individuals with a high school education, individuals living in the City of St. Louis, individuals with or without health care coverage and all females (see table 3). These results are interesting because statewide differences in physical inactivity are small among gender and race subpopulations.

Obesity rates increased with age and decreased with education, with the highest rates found among persons age 55 and older and those with less than a high school education. There was a general and consistently higher prevalence of obesity in African Americans overall and across all demographic and health-related factors. This was true for males and females. Among males, the overall and stratified estimates show a consistently higher prevalence of obesity among African Americans. Among females, prevalence estimates were higher for African Americans both overall and across all demographic and health related factors. Obesity rates were highest among African-American females in all age groups, among those living in the City of St. Louis and in Kansas City, with less than and greater than a high school education, with health care coverage and for all individuals (see table 4).

The overall prevalence of self-reported hypertension increased with age, decreased with education and was higher among respondents who had health care coverage. The highest rates were observed among persons age 55 and older, those with less than a high school education and with health care coverage (see table 5). While the age effect was consistent across gender and race, the health care coverage effect was apparent only among African Americans and the education effect apparent only among women. The was no difference in hypertension rates among males. In females, the overall prevalence of hypertension was higher for African Americans than for white/others. Differences included the 18-34 and 55 and older age groups, individuals living in the City of St. Louis, individuals with greater than a high school education, with health care coverage and for all individuals (table 5).

The highest rates of unmonitored cholesterol were found among persons age 18-34, those with less than a high school education and those without health care coverage. A higher overall rate was observed for males vs. females and was apparent among white/others and African Americans. Prevalence rates among males were higher in African Americans across the three regions for age, education and health care coverage. In females, the overall prevalence rate was also higher among African Americans, but there was no consistent trend across demographic and health-related variables. Regionally, males had higher rates of unmonitored cholesterol in the City of St. Louis than did females (see table 6).

Appendix C:

Cartographic Analysis

Cartographic analysis is a key component in understanding the nature and extent of health problems for defined geographic areas. This appendix describes the methods of automated map production and analysis of study variables. Objectives are to:

- examine the spatial distribution of modifiable CVD risk factors among African Americans in selected sites;
- compare how each site reflects the broader socioeconomic context of the region; and
- compute and map the estimated modifiable CVD risk factor prevalence rates by ZIP code at each site.

Hardware, Software and Type of Maps Used

The maps for this project were produced with Adobe Illustrator, a leading microcomputer-based, computer-assisted design program, on a Macintosh personal computer. The type of quantitative thematic map used in this report illustrates clearly the relative magnitudes of phenomena by geographic location. Proportional symbol maps use varying symbol sizes from place to place in accordance with quantities they represent. Proportional symbols can represent additive totals or derived ratio data. This technique also was chosen because it displays more quantitative detail than other techniques.

Spatial Units and Boundary Files

The City of St. Louis sample was drawn from twelve contiguous ZIP codes, which varied considerably in area and population (one ZIP code included in the study was excluded from cartographic analysis) (see Map 3). St. Louis ZIP codes ranged in size from 0.86 to 17.6 square kilometers and in population from 733 to 30,427. The Kansas City sample was obtained from a total of nine contiguous ZIP codes which ranged in area from 4.2 to 25.1 square kilometers

and in population from 7,048 to 30,330. In contrast to these urban sites, only a few of the ZIP codes for the Bootheel were contiguous. The nine ZIP codes sampled in the Bootheel varied in size from 96.1 to 440.7 square kilometers and in population from 1,019 to 8,408.

A word of caution concerning the use of ZIP code boundaries for spatial aggregation is appropriate. ZIP codes represent an imposed, arbitrary boundary and do not necessarily reflect the natural distribution of the data collected. In the City of St. Louis and Kansas City, ZIP codes represent relatively large spatial areas for purposes of geographic analysis. This type of aggregation can mask variance.

City of St. Louis

Twelve ZIP codes within the City of St. Louis were sampled (Map 1). All ZIP codes for St. Louis are contiguous, which reflects the relative concentration of the area's African-American population. The total number of study participants in St. Louis was 982, with the number of cases per ZIP code ranging from six (ZIP code 63101) to 375 (ZIP code 63115) (Map 2). A majority (56.9%) of St. Louis's population lives in the study area as well as a large majority of the city's African-American population (92.4%). The study site contains 75.8% of the population living below the poverty level, considerably higher than the area's base population. By contrast, the proportion of the city's population 25 years or older with no college education is slightly lower than would be expected at 53.6%.

Several ZIP codes had fewer than fifty cases, the minimum number needed to calculate stable rates. As a result, the weighted CVD-prevalence-rate map contains gradated circles for nine areas instead of the twelve sampled (Map 3).

Kansas City

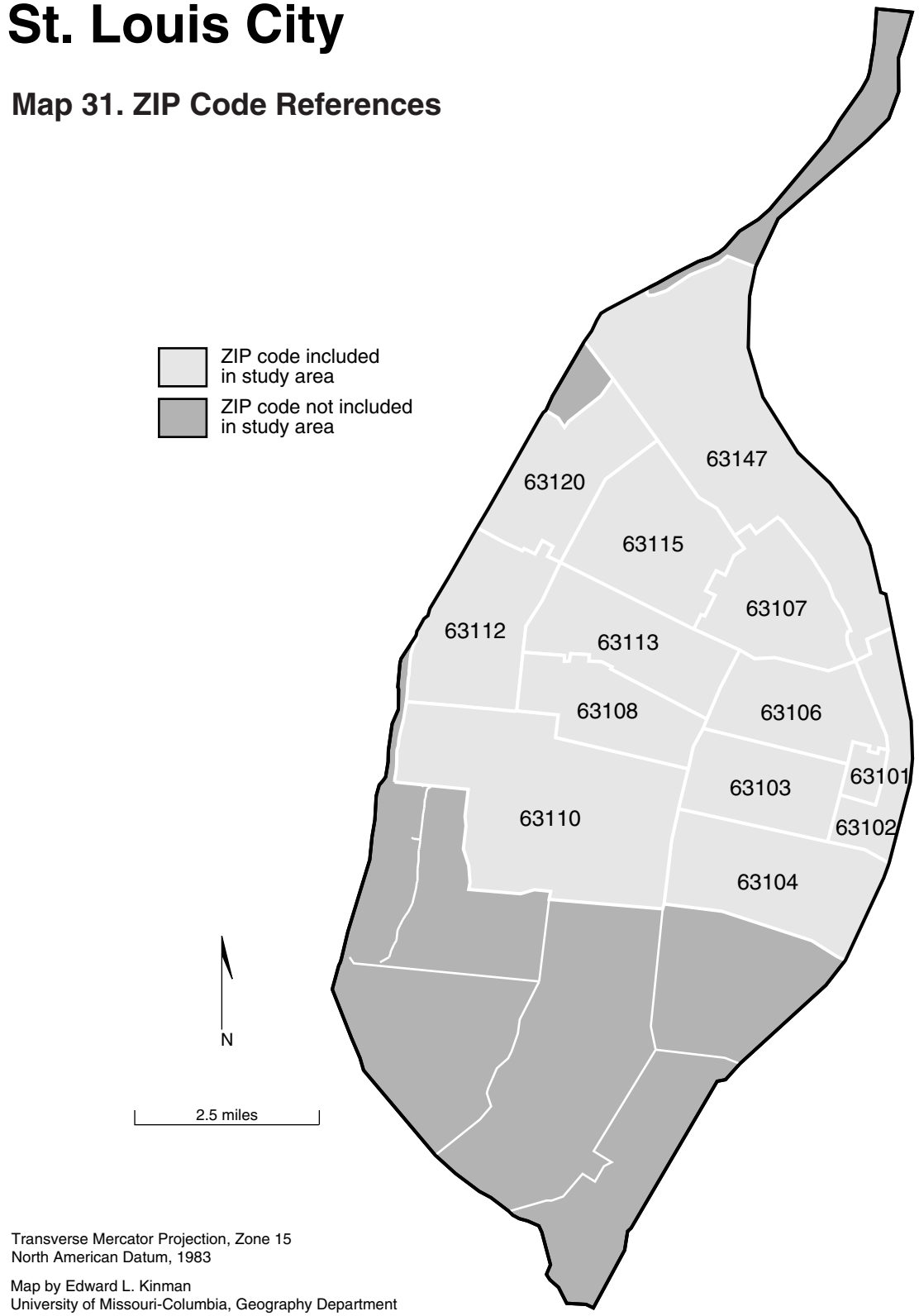
A total of nine ZIP codes within Kansas City were sampled (Map 5). Like the City of St. Louis, all ZIP codes for Kansas City are contiguous, which reflects the relative concentration of the city's African-American population. The total number of survey participants in Kansas City was 700, with the number of cases by ZIP code ranging from 11 (ZIP code 64106) to 158 (ZIP code 64130) (Map 6). While the ZIP codes included contain only 37.4% of Kansas City's total population, they represent a large majority of the city's African-American population (81.3%). The study area contains 64.8% of the city's population living below the poverty level, which is almost twice as high as the area's base population. In addition, the study area contains a majority (53.6%) of Kansas City's population 25 years or older with no college education.

Bootheel Region

In the Bootheel region, a total of nine ZIP codes from Dunklin, Mississippi, New Madrid, Pemiscot and Scott counties were sampled (Map 9). Unlike the City of St. Louis and Kansas City, the ZIP codes included from this region are not all contiguous, which reflects the dispersed nature of the African-American population throughout the Bootheel region. The total number of participants from this area was 403, with the number of cases by ZIP code ranging from 10 (ZIP code 63866) to 106 (ZIP code 63851) (Map 10). The differences in the number of respondents among ZIP codes generally reflects the variation in population among ZIP codes. The ZIP codes sampled contain 28.9% of the Bootheel's total population, and 61% of the region's African-American population. This disproportionate sampling was intended. The study area contains 36.1% of the region's population living below the poverty level, which is also higher than expected given the area's population base. By comparison, the proportion of the Bootheel population 25 years or older with no college education is close to expected at 28.3%.

St. Louis City

Map 31. ZIP Code References

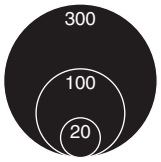


Transverse Mercator Projection, Zone 15
North American Datum, 1983

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

St. Louis City

Map 32. Unweighted Number of Study Participants by ZIP Code



St. Louis City Demographics

- Total people396,685
  White 202,276
  African American 187,995
  Other 6,414
- People below poverty level 95,271
- People 25 years or older with no college education164,187

Study Area Demographics

- Total people226,431
  White 49,789
  African American 173,735
  Other 2,907
- People below poverty level 72,307
- People 25 years or older with no college education 88,324

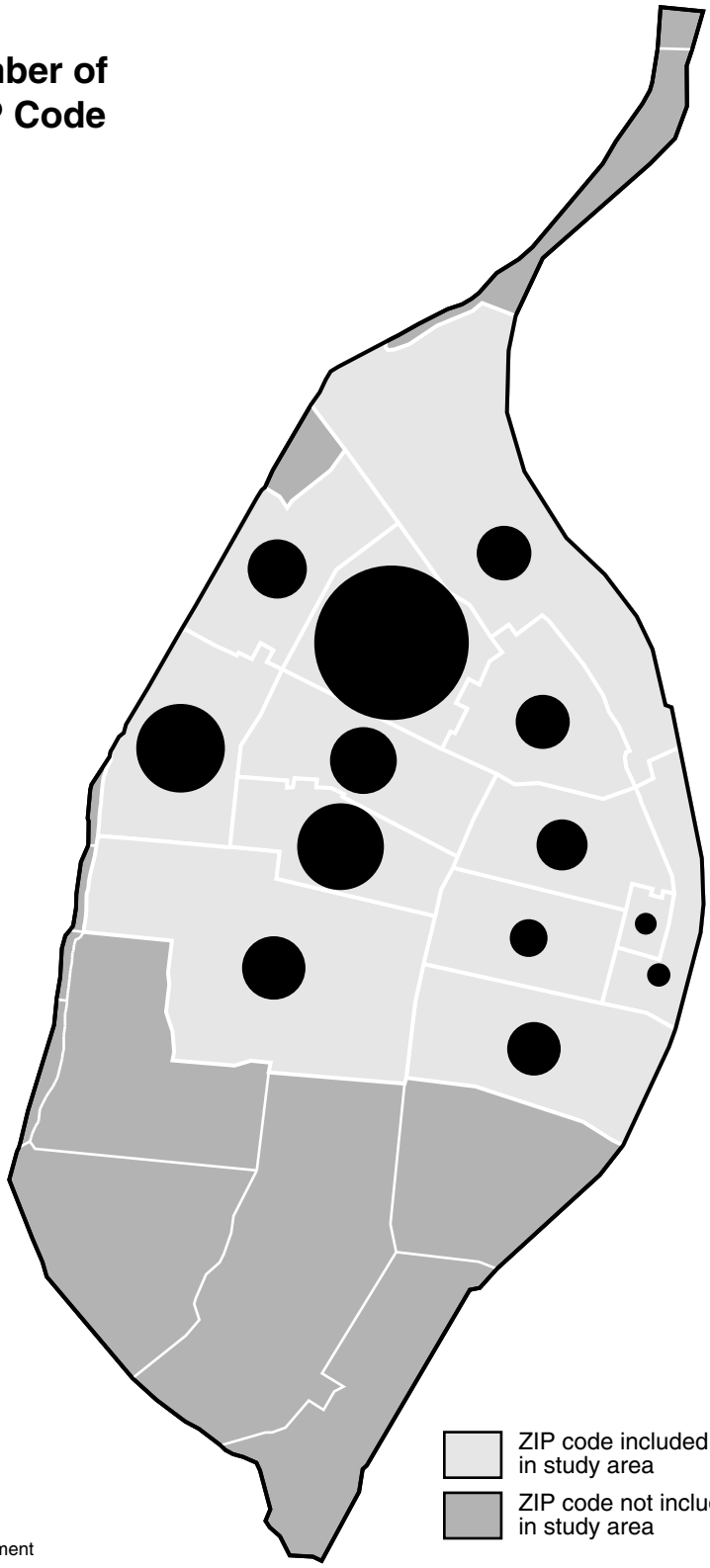
- Proportion of St. Louis City's population in study area 57.1%

- Proportion of St. Louis City's African-American population in study area 92.4%

- Proportion of St. Louis City's population below poverty level in study area 75.9%

- Proportion of St. Louis City's population 25 years or older with no college education in study area 44.0%

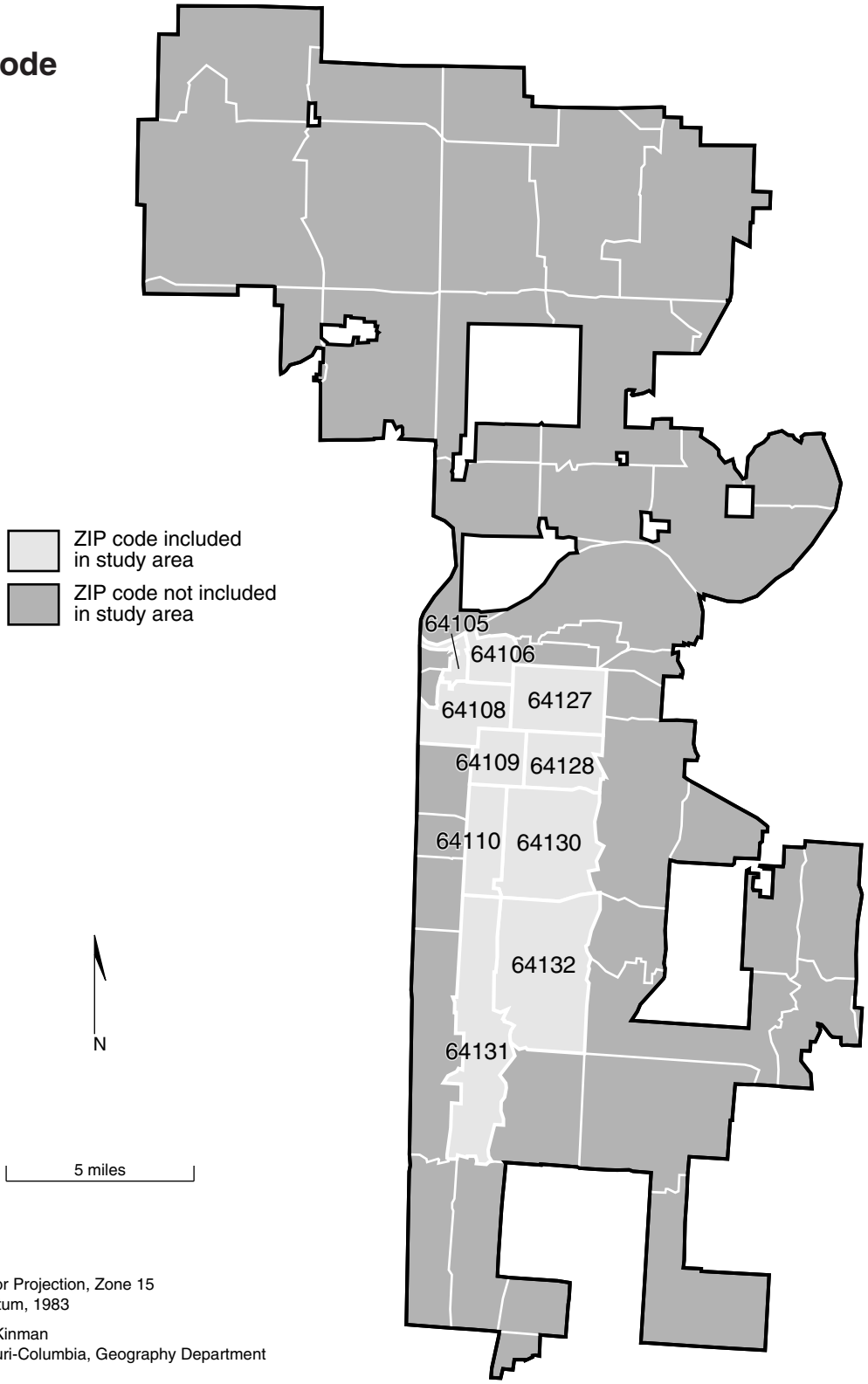
Source: U.S. Census Bureau, 1990.



Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 33. ZIP Code References

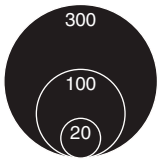


Transverse Mercator Projection, Zone 15
North American Datum, 1983

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Kansas City

Map 34. Unweighted Number of Study Participants by ZIP Code



Kansas City Demographics

- Total people435,141
  White 290,898
  African American 128,843
  Other 15,400
- People below poverty level 65,381
- People 25 years or older with no college education223,662

Study Area Demographics

- Total people162,590
  White 50,912
  African American 105,171
  Other 6,507
- People below poverty level 42,641
- People 25 years or older with no college education 62,110

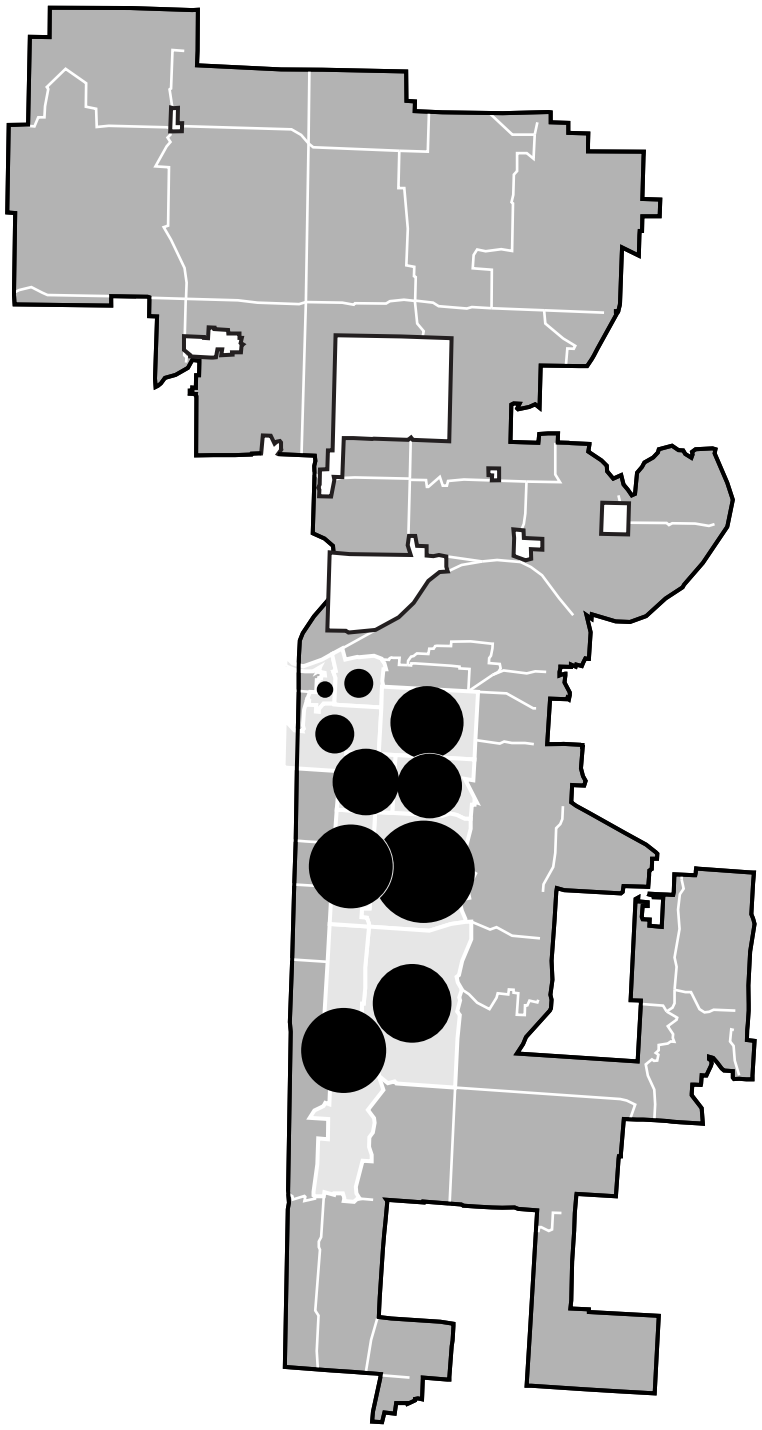
- Proportion of Kansas City's population in study area 37.4%

- Proportion of Kansas City's African-American population in study area 81.6%

- Proportion of Kansas City's population below poverty level in study area 65.2%

- Proportion of Kansas City's population 25 years or older with no college education in study area 27.8%

Source: U.S. Census Bureau, 1990.



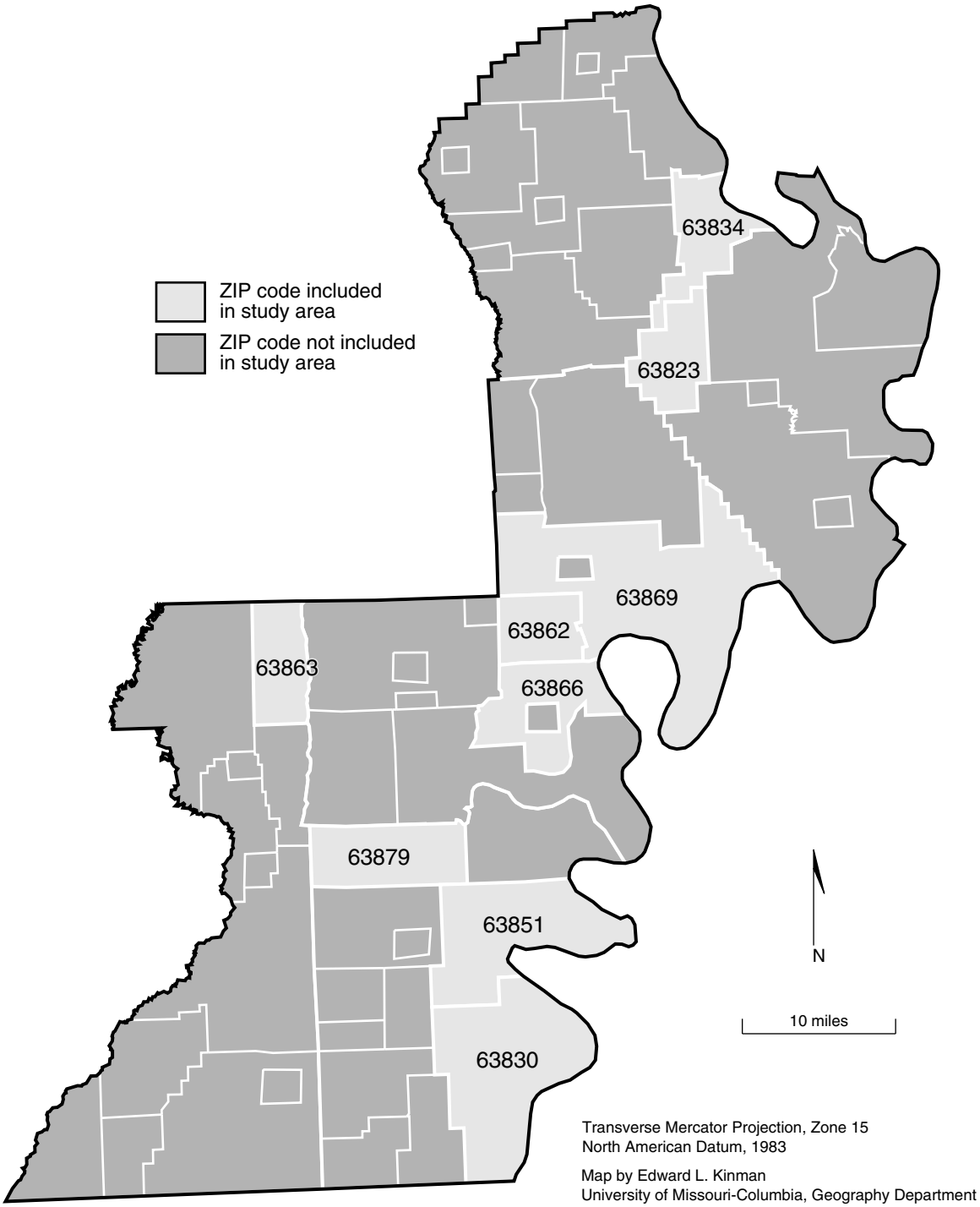
ZIP code included in study area

ZIP code not included in study area

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Bootheel Region

Map 35. ZIP Code References



Bootheel Region

Bootheel Region Demographics

- Total people 129,729
  White 111,467
  African American 17,657
  Other 605
- People below poverty level 34,290
- People 25 years or older with no college education 65,024

Study Area Demographics

- Total people 37,434
  White 26,558
  African American 10,769
  Other 107
- People below poverty level 12,393
- People 25 years or older with no college education 18,429

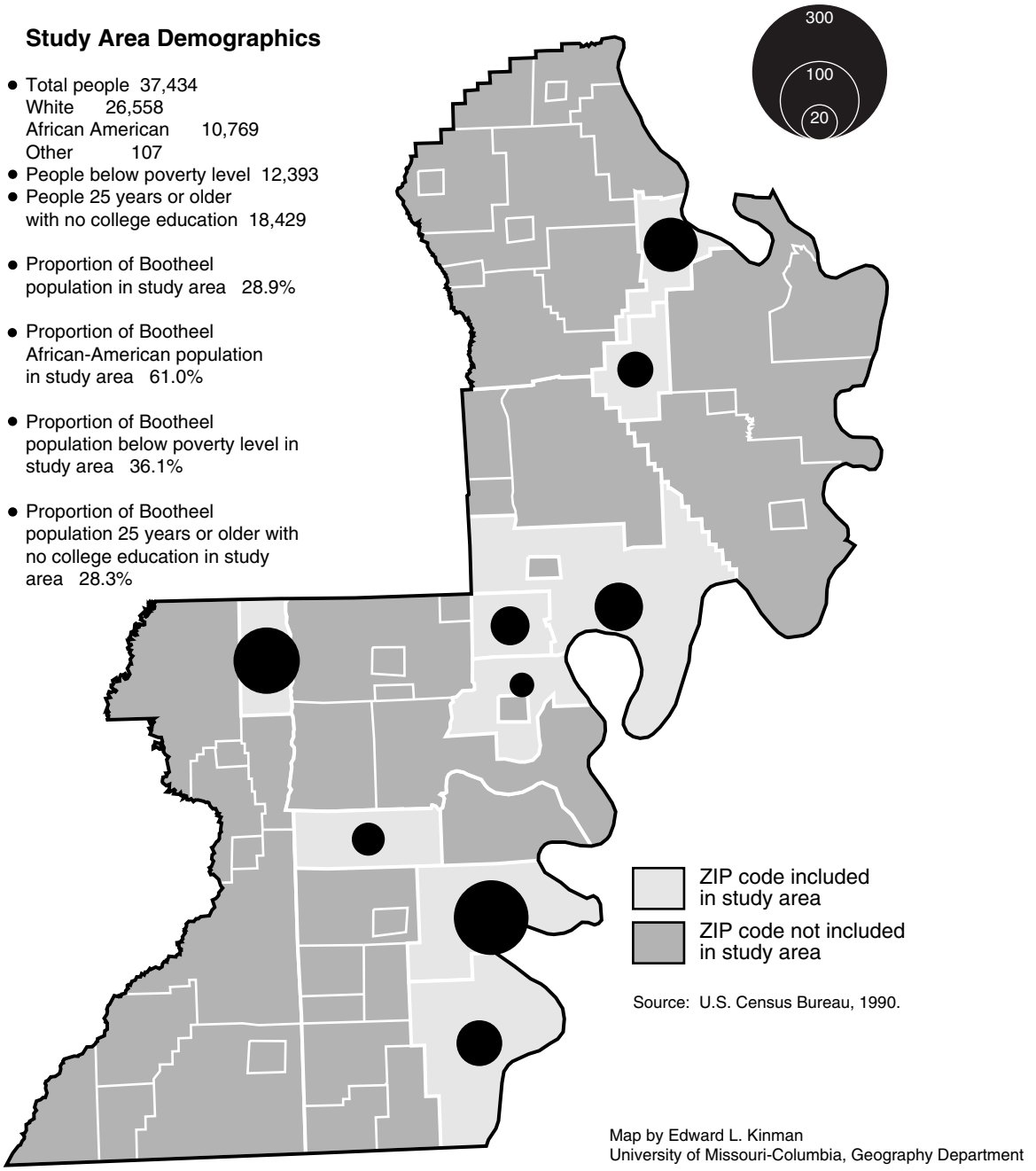
- Proportion of Bootheel population in study area 28.9%

- Proportion of Bootheel African-American population in study area 61.0%

- Proportion of Bootheel population below poverty level in study area 36.1%

- Proportion of Bootheel population 25 years or older with no college education in study area 28.3%

Map 36. Unweighted Number of Study Participants by ZIP Code



Source: U.S. Census Bureau, 1990.

Map by Edward L. Kinman
University of Missouri-Columbia, Geography Department

Missouri Cardiovascular Health Program

What is Cardiovascular Disease?

Cardiovascular disease (CVD) pertains to conditions affecting the heart and blood vessels, including coronary heart disease, atherosclerosis, stroke, and high blood pressure. CVD is the most common cause of death in Missouri among all racial and ethnic groups and for both sexes. Missouri ranks among states with the highest CVD rates. In 1997, CVD accounted for 42% (22,624) of deaths in Missouri, which is more than the next eight leading causes of death combined. In the same year, hospitalization expenditures relating to CVD cost Missouri over one billion dollars (reference CHIME data).

Missouri Cardiovascular Health Program

Since 1996, the Cardiovascular Health (CVH) Program has addressed the disparities and health care needs among ethnic minorities, elderly, youth, low socio-economic groups and underserved high risk populations in the cities of St. Louis and Kansas City and in southeast Missouri. In these areas of the state, risk factor screenings, education and awareness in community, church and school-based programs were utilized to reduce the overall mortality rate inflicted by cardiovascular diseases.

More recently, based upon recent direction given by Centers for Disease Control and Prevention (CDC), a statewide cardiovascular health program has been developed to examine the policy and environmental issues surrounding the cardiovascular disease risk factors of physical activity and nutrition. All across Missouri, local coalitions will have the responsibility of assessing their communities for available resources for physical activity, nutrition and other health issues and planning, developing, implementing and evaluating interventions to address the identified policy and environmental issues.

In addition, the CVH Program provides support to two regional programs relating to the prevention of cardiovascular disease. The *"Heart Health Coalition Program"* and the *"Women and Physical Activity Program"* serve the Bootheel and Ozark areas of southeastern Missouri. These two nationally recognized programs have been established to address the disparity of CVD among African American and low socio-economic populations in those areas of the state. Both programs look at physical activity and nutrition risk factors and address policy and environmental issues impacting CVD rates.

Staff and Services

The CVH Program provides technical assistance and support to local organizations and agencies to inventory their community and determine barriers regarding policy and environmental issues surrounding physical activity and good nutrition, and develop and implement a plan to address those barriers. Through program coordinators and health educators in mid-Missouri and the St. Louis area and coalition coordinators in southeastern Missouri, local communities have access to cardiovascular health and risk factor awareness information, as well as support for program development regarding improving policies and environments to support physical activity and good nutrition.

Resources and Supporting Organizations
The Cardiovascular Health Advisory Board has recently been developed to partner with a variety of key organizations including other state agencies and public and private organizations to further advance the mission of the Cardiovascular Health Program. The Advisory Board will provide support to the CVH Program in meeting the goals and objectives established to reduce the incident of cardiovascular disease among Missouri's citizens.

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— Notes —

RACIAL/ETHNIC DIFFERENCES IN THE PREVALENCE OF MODIFIABLE CARDIOVASCULAR DISEASE RISK FACTORS IN THREE REGIONS OF MISSOURI, 1996

Office of Surveillance, Research and Evaluation

Missouri Department of Health

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